Telephony.

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H. B. McMEAL, President and Editor
J. R. Hastie, Advertising Manager
H. D. FARGO, Secretary and Treasurer
E. Klappenbach, Asst. Advertising Manager
S. R. EDWARDS, Technical Editor
W. E. Raymond, Subscription Manager

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Telephone Selfishness.

Periodically we all hear bitter complaints about what might be called "frivolous use of the telephone." Someone with a really important message to transmit is obliged to wait with more or less patience while Mrs. Brown monopolizes the wire telling Mrs. Smith how she is having her hat trimmed, or about the rumors of trouble in the Jones family. Then the party who has been obliged to wait raises his voice—it is usually a man—in righteous indignation that anybody should be permitted to tie up a line with inconsequential conversation and delay important business.

No doubt there is legitimate ground for the complaint, but is it not true that within a week this identical objector may be guilty of a similar offense by chatting over the telephone with a friend with whom he discusses baseball or a fishing expedition, while the woman who aroused his wrath a few days ago is clamoring for the wire in order to give a rush order to the downtown grocer or meat market? In other words, are we all not likely to find ourselves guilty of "frivolous use of the telephone"?

It is probably in some such spirit that an Eastern paper asks this question, "Why not condense speeches over the telephone?" In an argument in favor of this custom, the editor, who probably had just experienced a long wait for a much-wanted number, goes on to say:

> In every business place worth while the telephone is wanted, either in that place or by some caller from outside, many times every hour; often there is a "waiting list" piling up seeking to get the wire. Why should a person with no very special important business to transact take a telephone under such circumstances and tie it up three to five minutes chatting over minor details and repeating himself over and over again? If a man stands in a doorway and another person wants to enter by that doorway, it is only a fool or worse who will not move to allow that second person to enter. Yet how about the person who gets on a telephone wire, hears the sounds that indicate that others want to use the wire, and who then keeps on talking, talking, talking against time and with utter disregard of the rights of others, some of whom may have important hurry messages—may even want to telephone for the fire department or for the doctor?

There certainly is reason in the foregoing statement. Nobody would be permitted to play on a railroad track and suspend traffic, even if they owned a little piece of the track. Such a thoughtless person would be run over in more ways than one. He would be told that he could not tie up thousands of dollars' worth of equipment and inconvenience many people just because of his whim to fool around on the right of way.

In a sense, the same is true of the telephone. It is unfair to monopolize a line just to chatter while others have really important use for it. Every line represents a money investment by the telephone company, and if a subscriber realized that he was actually defrauding somebody out of more or less coin of the realm by needless use of the wire, perhaps, there would be less complaint of this character.

The wisest men in the business have not been able to prevent needless use of the telephone, and probably never will. It seems to be a matter that each subscriber must settle for himself. When the millenium arrives and all human beings show an invariable consideration for the other fellow's feelings and rights, the question may be solved.

The Making of a Manager.

At a time when things in Cuba were in an unsettled condition and it began to look as if the United States would have to take a hand in straightening out the situation, President McKinley wished to communicate with one of the Cuban generals. How that was accomplished is now history and the readers of "The Message to Garcia" are numbered in the millions. The delivering of the now famous message was a successful achievement and has served as an incentive to many persons in their climb on the ladder of success.

Those who have just come to the ladder and are preparing to climb take advantage of everything which will aid them. Telephone men study their superiors to discover the factors which have advanced them up the ladder and take advantage of any hints that may be given. The article "A General Manager's Advice to His Exchange Managers," which appears on other pages, contains many hints which the ambitious man will use to advantage.

Passing of The Commercial Spendthrift

By HERBERT KAUFMAN

This is the hour of the thrifty man. There is no further chance for the spendthrift. The era of prodigality is ending. Economy is the new world-watchword; conservation, the goal of progress.

We are through with wasters. Our minds are turning to the rag bag, the scrap heap and the slag pile. Science is directing men to treasure troves of which our fathers did not dream.

The national debts of the universe could be paid with the valuable products which we, for centuries, cast aside as useless.

The centuries behind us were pregnant with splendid achievements but maimed by vandalage. The benefits they conferred upon us are practically offset by the criminal squandering of fabulous riches.

We are paying the fiddler, today, in high-priced food, timber, fuel, power and clothing, because we did not employ common sense as well as genius in the exploitation of our opportunities; because the great minds of yesterday were ignorant of real efficiency; because the pioneers in agriculture and lumbering and manufacturing lacked foresight.

We must breed men for tomorrow big enough, and wise enough, not to deplete sources of future prosperity in the creation of their own estates.

Science and trade must henceforth work as partners and co-operate so that each of us may share and spare more.

What a few great corporations have already accomplished in the utilization of formerly rejected by-products, every man in every field of work can accomplish in proportionate measure.

The gold mines of the Yukon and the Rand, the diamond diggings of Brazil and South Africa, promise paltry pittances compared with the illimitable fortunes which lie at every turn in any city.

The biggest soap manufacturer on earth only recently learned that he had annually flushed into the river tons of glycerin with the wastage of his boiling vats.

A great eastern city, after expending half a million per year on the removal of its garbage, is now receiving six hundred dollars per day from a company which performs this office at its own expense and pays a bonus for the privilege.

Chemistry has shown the manufacturer how to secure oils and fertilizers and fuels from discarded bones and fats and vegetables.

We are just learning to stop our leaks. We are at the mere threshold of revelations which will endow civilization with innumerable means of salvaging millions from the garbage can and the ash heap.

A new equation has entered commerce. Thrift has become a profession. How much time are you devoting to its study?

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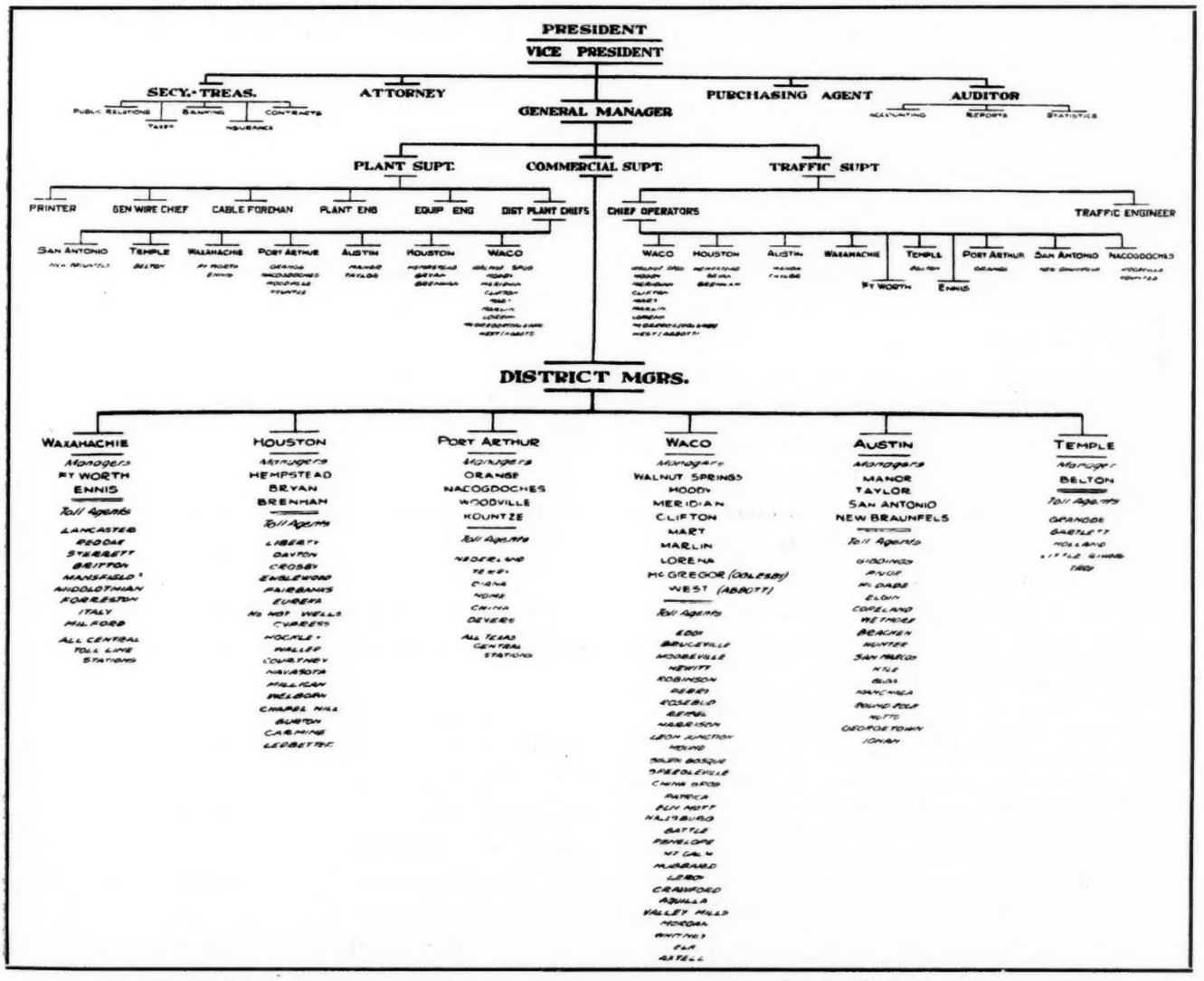
A General Manager's Advice to His Exchange Managers

A Comprehensive and Practical Resume of the Elements Which go to Make up the Quality of Service Required of Local Telephone Managers—Paper Presented at a Meeting of the Managers of a Large Independent Telephone System—First Installment

By P. Kerr Higgins
General Manager Texas Independent Telephone System

This system is now working under an organization with specialists in charge of the several departments: Accounting, Commercial, Plant and Traffic. Each department is dependent upon the other for success. The traffic department cannot render the best service unless the plant department constructs and maintains the plant upon a high standard of efficiency. The accounting department cannot do its full duty unless the records made and kept by the various departments are accurate and reliable. The commercial department fails if all departments are not working together on an economical, efficient basis. In order to succeed as a company we must develop the inert telephone apparatus into a live business proposition. This means the transforming of untried, inexperienced persons into highly trained telephone employes, and can only be accomplished by having competent heads of departments and managers. We need quality more than quantity.

Life is sequential, the little things done well today mean the big things of tomorrow. Faithfulness in small things means ruling over larger activities later. The secret of success in life is to prepare for and be ready when your chance comes. Thinkers succeed because thinking develops energy, power and absorbing qualities, something that is lacking in most employes. Think carefully. Reach out for knowledge beyond your immediate environment. Utilize your free moments to good advantage by getting the study habit. Study the man ahead of you and strive to be as good, if not better, than he is. The ability to manage cannot be obtained solely from reading matter, and, while we are very anxious to encourage and develop the study habit among our managers, we desire to warn them to be careful not to fall into such a studious frame of mind that it will be incompatible with practical business methods. It has been said, "What profiteth it a man to keep so busy plastering his desk with mottoes



Organization of the Texas Independent Telephone System, Which Has Its Headquarters at Waco, Texas.

such as 'Do It Now,' 'Keep Smiling,' etc., that he allows his exchange to get beyond his control?" Yet, I know of many cases where this has actually been done.

There are only two kinds of employes, the efficient and the inefficient. Decide upon your standard and never let up until you get there. To do this three factors are essential. 1. Resolution. 2. Energy. 3. Persistence. Plan ahead and stand by the ship when others fail. Make every day a record day. Never make the same mistake twice. Hard luck thoughts fill the mind with failure. Success thoughts thrive, nourished by desirable and proper optimism.

One of our great troubles is that our supervision costs are too high, thereby holding down line wages. This can only be remedied by employes being in love with their work and having a burning desire to do better work than they have ever done, thus requiring less and less supervision. Steer clear of dissipation and thus conserve your body and peace of mind. Be reliable, don't exaggerate or underrate. Be truthful, strive to win the confidence of your employer. Be punctual. Reliability is the price of success. You pass for what you are; it is indelibly written on your face.

Be enthusiastic in your work, slow to speak, quick to observe, hear and act. Don't mistake enthusiasm for hustling. A fly in a bottle makes plenty of noise and fuss but accomplishes nothing by it. Take a good hold on life with both hands and with all your might and not by the tips of your fingers. Don't make excuses, they weaken your character.

Efficiency is measured in work done, not excuses. Efficiency is the ratio between opportunity and results, and is obtained not so much by speeding up, as by removing obstacles without worry and loss of energy. Use your head and not your heels. You will get what you deserve, usually, never more and seldom less. Work should be defined as the activity of right thinking; rest, as the harmony of right thinking. Idealize your life, if you will, but make yourself a good living by constantly improving your conditions. Without employes, capital is idle and vice versa. Let us co-operate with capital. You must improve the quality of your service if you would have increased earnings.

A telephone manager is, or should be, a very important citizen in his community. We are extremely anxious that he should realize and know this fact; but not know it too well. Our investment at each exchange in this system runs from tens of thousands of dollars into the millions, and it should be quite a compliment and honor to any manager to have this responsibility placed upon his shoulders, provided he is the proper man for the place.

At the root of all success in any calling or sphere of life is the mental attitude of the individual: First, to his superiors in the business; next, to those working with or for him; next, towards himself; and, finally, but most important, his mental attitude towards his "boss," the public. Closely following mental attitude, comes point of view. No two men look at any one thing from the same angle or viewpoint; and so, in like manner, no two managers seem to look at a problem placed in their hands with the same mental attitude toward that problem nor look at it from the same point of view.

Executive Ability and Managerial Duties.

The first essential of the ideal manager is naturally executive ability, and it is strange, but true, that executive ability is one of the rarest things in the business world; yet, those who lack this talent are usually those who least understand why they are not placed in charge of the work of others. As induction is the bugaboo of telephony and yet the best friend that telephony has, so, in like manner, is the fact just mentioned, for the reason that the business world could not make much progress if all employes possessed executive ability.

It is the custom of many companies to outline, as nearly as possible, in circular letters, the duties and responsibilities of the manager, stating therein the many things he is expected to do and emphasizing the many things he must not do, but this effort on the part of the company is never fruitful of results unless the individuals, to whom the circulars are sent, are capable of appreciating the efforts on the part of the company to assist them in making good as the company's representative in his local community.

It is impossible for any man or men to completely cover, in circular letters, the many duties and responsibilities that devolve upon the manager, for the reason that local conditions in no two places are alike, and many situations present themselves which cannot be set down in regular stereotyped form, but must be largely left to the exercise of business sense and good judgment on the part of the manager. The faults and failings of no two managers are alike, hence it is a difficult matter to outline specifically the things to be avoided.

Prerequisites of Success.

Many managers seem to think they have done their full duty when they have promptly handed in their reports reasonably near the first of every month, when they have a fairly good rating on collections and little or no criticism regarding the following out of the rules as laid down by the company. All of these points are to be commended, but they merely indicate the routine work of the manager; in fact, in some cases these duties should be subordinate to many other important ones, for the reason that cheaper help can be employed to perform the regular routine of the telephone business.

One of the fundamentals of a good manager should be that he be of good moral fibre. Lacking in this important factor his ultimate success is limited. The manager who depends upon grandstand plays, "fore-flushing," "hot-air" speeches and "windy" letters is sure to be "called" sooner or later. While character is fundamental, a man having a high character and small intelligence, very little tact, devoid of intuition to separate good suggestions from bad ones, lacking the sympathy of his fellow workman and an unwillingness to assume responsibility, would be a miserable failure in business. In fact, the virtues just mentioned are a necessary part of the building which must, of necessity, be erected upon the foundation of character. In addition to these virtues which are essential in business building, there must be actual experience plus special qualifications for the position of manager, and the lack of these qualities can never be made up by any amount of theorizing, nor by the rules and regulations of any system.

Many rules and regulations may seem harsh and not applicable to local condition, as the local managers see them, and in cases such as this, it is, or should be, the duty of the manager to immediately consult with his superior officer, so that he may be thoroughly satisfied as to their local application, always remembering that there must be exceptions to any rule made.

Rules and regulations do not mean much to the public and great care should be exercised never to use the phrase, "This is the rule of the company," remembering that the company does not draw up rules governing the public. It has no such judicial powers, but simply prepares rules and regulations for the guidance of its employes. The manager who does not handle all questions with the public in a diplomatic manner without citing and bringing into prominence the rules of the company, is not a fit representative of the company. The mere fact that it is a rule of our company never satisfies the public and usually has tendency to antagonize them and make them suspicious.

Some of the tests this company applies to its managers, as to their efficiency, are: First, how much supervision does he require in his own work; second, how much does he lean

upon his superior. One of the great troubles with our entire system, along all lines, is the tendency on the part of many of us to continually run to our superior officer with every little trivial matter, when, as a matter of fact, we should rightly decide such matters ourselves if we are big enough, and willing enough to assume the responsibility.

Your exchange is just about what you make it and the company in your locality is just about what you are, or appear to them to be, nothing more, sometimes less; and if I cannot emphasize any other feature I want to emphasize the fact that the public judges our company and our system by you, for the reason that you are its sole representative to them in that locality and are supposed to represent to them the policy and attitude of this company toward the public. Again, what you are, so are the employes in your exchange. If they are not efficient, then you are to blame.

It has been said that a telephone company, or other public utility, is but the lengthened shadow of a man; and this is an absolute truism, for the public will not brook divided responsibility and insists on looking to one person, viz., the manager, and will recognize no other department or departments. This may be a matter of usage, but, inasmuch as the public is master and we the servants, we must bow to the inevitable until such time as education or some other method will remedy the defect, if any exists; hence the burden of local responsibility must rest absolutely upon the manager and he, of all persons, is the one to make adjustments.

The manager or department head who has not yet developed into an executive is usually the one who swells up whenever some small success is scored and cannot rest until he has told everyone in the company, and outside of it, what a wonderful thing he has done, but who, when he fails in his duty, is prone to look around and see on whom he can put the blame, rather than placing it where it belongs, on himself. He is of the opinion that the general manager has held him down too tight, one way or another, and if such and such a thing had not happened he could or would have done better.

The Question of Duty.

In the telephone business as in probably no other, the manager is called upon constantly to meet ever-changing conditions, and in order to be a successful manager he must meet these conditions successfully, which means that he must be a man of many parts, with a ready response for every inquiry made on the part of the public.

No doubt, you frequently feel that the general office does not fully appreciate your efforts or the results accomplished, but we do, and we are always glad and happy when we are enabled to tell you or write you regarding any success or any good results which may have presented themselves in your jurisdiction. Perhaps you were reprimanded for some trivial things or some of your vouchers were not just as accurately written up as could be expected, or some small changes made by you were allowed to go unnoticed. It is asking too much of human beings that they ignore these things, but it is not asking too much that you let them affect you as little as possible. Remember that your chief is human just like yourself and this is probably one of his weaknesses and a little hint diplomatically dropped to him at some time will be the means of remedying this evil if it exists.

If you do your duty and accomplish something, there is a reward that you can get in your own mind, regardless of any appreciation on the part of anyone else and the effect it has upon your character is such that it should absolutely pay you for the effort made, regardless of any appreciation that might come; hence if your chief ignores the good things that you do, that is his shortcoming and not yours, and your ability to overlook this matter will prove absolutely to you, if to no one else, that you are a bigger man than he is, at least along that particular line. In any case, regardless of facts, there is no excuse for failure to do your duty. Please remember this, as there is no argument against it. Smile, overlook these non-recognitions and let Father Time take care of it, remembering that Time is a powerful rectifier and often wins a victory which haste would lose.

Singleness of Purpose.

If we do not respect the rights of our "master," the public, and those rights are trampled upon, ignored or abused, then retribution is usually swift in the form of adverse legislation and damage suits, hence the manager must fully appreciate the importance of the task before him and concentrate his entire ability on the work at hand, not dividing himself up with any side issues, such as picture shows, etc., but attending strictly to the business for which he is hired, viz., managing the property assigned him by the company.

It would appear sometimes as though managers felt that the only way to get rid of an undesirable position is to fill it so poorly that they will be transferred to something better. It is evident that they never studied logic or they would think differently. The man who succeeds in this, or any other business, is the man who fills his place so absolutely well that his employer will know and feel that he can fill a larger position with equal honor and credit to the company. The best managers, in my experience, are those who have learned obedience and who are willing to master the details before they attempt to build a complete structure. Regardless of what size exchange is given you, or what class of work you may be assigned, endeavor to fill that position in such a manner that no other man could fill it better than you can. If you can't make up your mind to do that, don't take the job. Never be ashamed to do menial labor and some day you will be placed in a position where you will not be called upon to do it.

(To be continued.)

Business Efficiency Dependent on the Telephone.

The commercial and industrial efficiency of Ft. Madison, Iowa, a city of 10,000 population, was reduced 85 per cent., it is estimated, by the melting of two telephone cables during a downtown fire recently. Disorganization in the telephone company's plant resulted in the service being discontinued for a couple of days. The result was amazing. Citizens who formerly spent much time fretting and stewing when they didn't get an instantaneous connection every time they called, realized for the first time what it means to be without any service.

Twice the customary number of persons thronged the streets transacting business ordinarily cared for by lifting a receiver. Merchants, manufacturers, professional men were compelled to use the time of expensive employes running errands. Messenger boys reaped a harvest from those housewives who did not tramp downtown to buy their daily supplies. Grocers were compelled to employ men to visit their customers instead of having one girl call and receive all regular orders by the telephone. Newspaper editors reported that their staff efficiency so far as time (probably the largest element in the contested newspaper field) was concerned, was reduced 90 per cent. Physicians reported a marked falling off in the number of calls received. Other professional men remarked that the press of business at the office and the lack of telephone service kept them from making important appointments. The entire populace was greatly relieved when the bells once more jingled.

Rate Increase at Sioux City.

Telephone rates in Sioux City will be advanced May 1, according to the announcement of the Automatic company's officials. Business telephones will be $4.25 instead of $3, and residence telephones $2.25 instead of $2.

A System of Accounting for a Small Telephone Company

A Method That Has Been Found Simple and Practical for a Telephone System of Less Than 1,000 Subscribers at San Marcos, Texas—Monthly Statement of Conditions Enables Directors to Note Exact Condition of Company's Business Each Month

A system of accounting suitable for a small telephone company has been developed by Merton Swift, manager of the San Marcos Telephone Co., San Marcos, Texas, after four or five years of experience in handling the accounts of such a company, and with a previous banking experience to draw upon. Once each month Mr. Swift makes out a "Monthly Statement of Condition" modeled after the statement which all national banks publish five times a year. This statement, which is reproduced in Fig. 1, of the accompanying illustrations, shows all of the accounts of the general ledger. The upper part of

DATE .....

RESOURCES:

PLANT:—
- Central Office Equipment
- Subscribers Station Equipment
- Pole Lines
- Cable
- General Equipment
- Intangible Assets
- Total Plant

ACCOUNTS RECEIVABLE:—
- Rental
- Toll
- Miscellaneous
- Total Acc't Receivable

Cash on hand

Balance in Bank

Total Resources

LIABILITIES:

CAPITAL STOCK:

Surplus

* Net Earnings from Jan. 1st to date

Reserve for Depreciation

Taxes Accrued

Interest Accrued

Bills Payable

Accounts Payable

Due to Bank

Total Liabilities

* Net Earnings from Jan. 1st to date includes the following accounts:
- Rentals for Exchange Service
- Commissions on Toll Business
- Directory
- Tolls
- Gross Earnings
- General Expense
- Operating Expense
- Maintenance, Repairs, etc.
- Insurance
- Taxes
- Interest
- Total Expense

NET EARNINGS
- Depreciation
- Dividend
- Balance to Surplus Account

Number of subscribers today .....

Fig. 1. Monthly Statement of Condition.

the form shows the resources and liabilities, and the lower part shows the revenue accounts and expense accounts. This form serves as a balance sheet as well, the balances of all the general ledger accounts being transferred to it.

The plant account is subdivided into six divisions. These, Mr. Swift states, could all be carried in one account, except that the depreciation can be estimated more accurately, as each department depreciates at a different rate. It could be made still more accurate by further subdivisions but it is believed that for an exchange of fewer than 1,000 subscribers, the six divisions shown are sufficient. While the statement shows only six expense accounts, each of these is subdivided still further in the ledger, a plan which can be carried as far as desired by using a loose leaf ledger.

The book of original entry used by Mr. Swift is ruled as

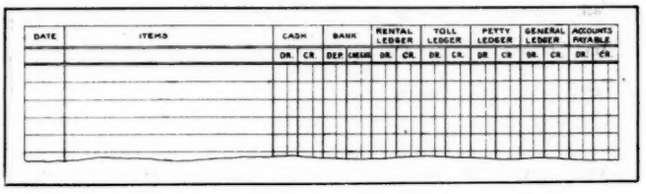


Fig. 2. Ruling of Journal.

shown in Fig. 2. The first columns are for cash and the difference between the debit and cash columns shows the amount of cash on hand. The second columns are for the bank account, to be used where all the business is to be done with one bank, the difference between the deposit and check columns showing the balance in the bank. The other columns are for the ledgers, the amounts written in these columns being posted to the respective ledgers. While the form shows five ledgers, there are not five separate books, as two or more

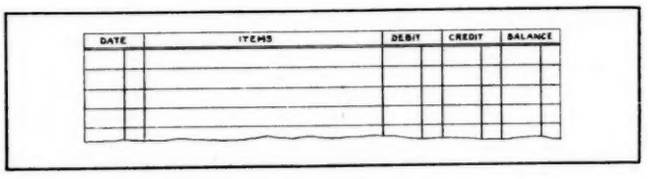


Fig. 4. Ruling of the Ledgers.

ledgers are carried in the same loose leaf binder by having separate indexes for each.

In making up the balance sheet it is not necessary to add up the ledgers to get the totals of rental and toll accounts, etc., as these can be taken from the footings of the columns in the journal. It is Mr. Swift's practice to carry his general ledger, petty ledger and accounts payable in the same loose leaf binder. The petty ledger is for material sold, moving charges, etc. The rental and toll ledgers are together in another binder, and are carried on the same ledger sheet in order to facilitate making monthly statements. For this purpose a duplicate statement

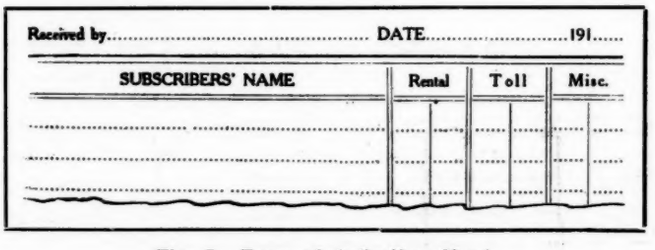


Fig. 5. Form of Collection Sheet.

ledger is used, the form of statement being shown in Fig. 3. A carbon copy is made while posting, and at the end of the month the total carried to the ledger sheet. The statement is torn out, the carbon copy reserved and filed away every two months, and new statements and duplicates put in.

The ruling of the ledger sheet is shown in Fig. 4. This is

the regular bank ledger ruling, having debit, credit and balance columns and a column for items. This can be made with two sets of rulings to the page, thus doubling the capacity, and the items could be printed in "rental, toll and miscellaneous," leaving another line blank for the credit.

It was found that writing the columns in the journal used

DATE.....191....

			CASH	
BALANCE FROM YESTERDAY				
Cash Tickets S. T. Tel. Co.				
Am't Charged S. T. Tel. Co.				
Total - - S. T. Tel. Co.				
Cash Tickets Our Lines				
Am't Charged Our Lines				
Total to be Cr'd Toll Account				
COLLECTIONS				
TOTAL CASH RECEIPTS				
PAID OUT				
Total Paid Out				
Cash on Hand				
Paid to Manager				
Balance Carried Forward				

Fig. 6. Check Clerk's Daily Report.

the book up rapidly and therefore some auxiliary collection sheets were printed, carrying the total of each sheet to the journal, and to the respective columns, as shown in Fig. 5, each sheet being numbered each month from 1 up.

The check clerk fills out a form each day, as shown in Fig. 6. This is carried to the journal, the cash and toll charges to their respective columns, the amount "credited to toll account" to the credit column of the general ledger, and the amount credited to the long distance company to the credit account of the accounts payable ledger. The check clerk itemizes the toll charges in a day book and posts them to the statement in the rental and toll ledger.

An adding and listing machine may be used to add up the ledgers, and to get the amount of monthly rentals by running through the rental ledger, or this can be carried in a trial balance book. The latter gives a better record for reference. An entry is made at the end of each month for the total monthly rentals, entering the amount in the debit column of the rental ledger and in the credit column of the general ledger.

With this system the directors can be shown at the end of each month the amount spent on the plant, and in what department; how the collections are running; how much is owed; how much cash on hand; the amount of rentals and other revenues; the amount of expenses of all kinds; and the net earnings to date. Once a year an estimate is made of depreciation, and the amount is deducted from net earnings, carrying the balance to dividend and surplus accounts. The amount shown by the "reserve" account does not represent cash on hand held in reserve, as it has been borrowed from this fund and spent on the plant for improvements and extensions. It shows, however, that that amount has been deducted from the earnings.

Anderson, Ind., Committee Favors Automatic.

George S. Parker, Frank Matthews and Dr. A. W. Miller of Anderson, Ind., constituting a committee to investigate the automatic telephone system, visited Rushville, Ind., to inspect the automatic exchange there, and returned with a favorable report. They will report in full later.

Bell Collection Plan in Topeka.

Subscribers of the Missouri & Kansas Telephone Co., of Topeka, have been notified that in the future all telephone dues are to be paid in advance, such payment being required by the 15th day of each month. In the course of its announcement the company says:

Unless payment is received by the 15th of the month it will be necessary to deny service from the telephone for five days. If bills still remain unpaid, for five days after the denial of service, the telephone will be removed.

In cases where the telephone is actually taken out for nonpayment and the subscriber again desires service, he will be treated as an entirely new subscriber, being required first to pay all accounts in arrears and three months in advance, and make a new contract. Such subscriber may also be assigned a new telephone number.

It is the intention of the company to treat all alike, and the company asks the co-operation of all patrons in making the plan a success. The company would prefer payment to be made by check, payable to the order of the company.

San Marcos Telephone Co.

SAN MARCOS, TEXAS

Name

Address

(Telephone Rentals are Payable Monthly in Advance)

Balance Carried Over from Last Month	
Rental for the Month of	
Long Distance Messages Itemized Below	
Miscellaneous	
TOTAL AMOUNT DUE	

DATE	BY WHOM SENT	TO WHOM SENT	AT WHAT PLACE	AMOUNT

Fig. 3. Form of Duplicate Monthly Statement Ledger.

The Proposed Trust Legislation of the Administration

Co-operation Required to Frame Laws that will be Fair and Just to the People and to Business—Discussion of the so-called Anti-trust Bills—The Five Brothers—Address before the United States Chamber of Commerce

By Henry R. Towne
President Yale & Towne Mfg. Co.

There is now pending in Congress a series of bills which vitally concern all business interests, some of them, the so-called "Anti-trust Bills," being understood to be endorsed by the administration.

In a free country all laws reflect the usage and the morals of the people; usuage precedes and creates laws. Legislators are able to deal intelligently with general laws because familiar with their purpose and qualified by experience to judge of their effects, especially as to laws relating to the general welfare of the community. This is not equally true, however, as to laws designed to regulate the conduct of business, because not many legislators are trained and experienced in business management and affairs. Therefore there is special need, in the framing of such laws, that the legislator, before reaching final conclusions, should seek the aid and advice of men of experience in business affairs.

I believe that business men generally are ready to respond to the call thus implied, and that if they appear to hold back at present, it is because they have had so little time in which to study the proposed bills and their probable effect on business, and partly perhaps because the events of last summer seem to suggest that business men would not be welcomed in the capitol and could not feel assured of courteous and fair treatment. The invitations recently extended by the committees having charge of the bills under discussion, for business men to attend their hearings, imply a different and cordial attitude, and I believe that they will be largely accepted if further time and opportunity can be afforded. I know that business men everywhere are keenly interested in these matters, and are watching their outcome with great interest, and I believe that most of them would be glad to aid in reaching sound and sane conclusions, according to their ability.

The bills which properly may be grouped together for the purposes of this discussion are the following, viz.:

"The Five Brothers" of the Administration.

1. The Interstate Trade Commission Bill.
2. The Interlocking Directorates Bill.
3. The Sherman Law Definitions Bill.
4. The Trade Relations Bill.
5. The Railroad Securities Issue Bill (not yet drafted).

Related Issues.

6. A bill for the investigation of "Combinations." (Similar in character to the "Canadian Combines Investigation Act.")
7. A bill to legalize and regulate re-sale prices.

Complementary Issue.

8. A bill to create a permanent tariff research body.

Each and all of these proposed new laws would directly and profoundly affect business; collectively they would influence it to a vital degree. The people, at the last national election, decreed that legislation of this general kind should be enacted. Business men as a class are not opposed to it. What both really desire is that these laws shall be fair and just, both to the people and to do business, and that they shall be enacted as quickly as possible. To accomplish this requires co-operation. The business man as a party in interest, is not competent alone to draft such laws; but neither is the average lawyer or legislator competent to deal with matters so complex and so technical without the aid of the expert. Working together and in harmony they can frame laws which will accomplish fairly what is sought.

It is the true desire and purpose of the nation, I believe, and should be the aim of these new laws:

To respect and regulate "*big* business" so as to eliminate privilege and monopoly, but

Not to hamper and weaken "*small* business" in any of its legitimate activities.

As to *both,* the aim should be to promote efficiency and proper co-operation, especially as to our export trade, the volume of which, and the excess of exports over imports, have both nearly doubled during the last decade. All the people are concerned in promoting our export trade, and in strengthening American manufacturers and merchants against foreign competition in the neutral markets of the world. Especially is it desirable that the smaller units of industry should survive and grow, in order that their benefits, to producers and consumers alike, may be preserved and extended. To this end the law should permit and encourage co-operation among them which will promote efficiency and lower costs, while equally forbidding artificial monopoly or privilege, and excessive prices and profits.

Turning now to the proposed bills, let us consider them in detail.

No. 1. Interstate Trade Commission. A new tribunal of this kind is unquestionably desirable, and its ultimate usefulness should equal that of the Interstate Commerce Commission. Business needs it and, if it is properly constituted, will welcome it. It would be a "Clearing House" for the solution of a vast number of the doubts and perplexities which now confront business. It should serve as the "Court of First Instance" for most matters arising under all of the proposed "bills," and also to promote *uniform practice* in all sections of the country, and *despatch* in dealing with all minor cases. Delay and uncertainty are heavy handicaps on business, and this new tribunal should greatly lighten them. Therefore it should be given wide jurisdiction and broad powers. I believe that most of the matters to which the so-called Administration bills relate could wisely be consolidated under a single law, the administration of which could be vested primarily and chiefly in the proposed new commission.

I urge, however, that the commission should *not* be authorized to make public the private affairs of corporations, except by order of a federal court, or of the President of the United States, for the sole purpose of aiding Congress in future legislation; nor do I believe that the commission should investigate one corporation at the request of another except for due cause shown.

No. 2. Interlocking Directorates. Some of these are unqualifiedly bad; some are harmless; some are useful and entirely proper. The proposed bill condemns them all, without discrimination. It is good in purpose but bad in form. If intelligently and fairly revised, I believe it will command general approval. As drawn, it would work hardship in many cases, would impair corporate efficiency, and would forbid many acts heretofore legal, customary and beneficial, which tend to injure none, and to benefit many. A subsidiary corporation may be not merely useful but essential in the conduct of business in foreign countries, or even in different states of the Union and its directorate, for obvious reasons, usually "interlocks" with that of the parent company. In like manner "a

holding company" may be not merely harmless, but useful to the community; as for example in promoting the development of public utilities in localities unable to finance them otherwise. In brief, this bill while crude, objectionable, and even destructive in its present form, can and should be so recast as to eliminate certain existing evils without injury or prejudice to any legitimate interest. Any such bill, however well formed, will require interpretation in a vast number of cases, and I suggest that the proposed Interstate Trade Commission may well be made the "Court of First Instance" as to these matters.

No. 3. Sherman Law Definitions. This bill purports to clarify the Sherman Law, but in fact it merely substitutes for the broad prohibition of the latter, the scope of which is rapidly being defined by court decisions, four specific varieties of forbidden acts, thus launching business on another sea of inexperience which can only be charted and understood by a new series of court decisions to determine the meaning and scope of these new "definitions," which do not define any better than those already made by the courts, if as well. Except as to Section 4, making individual officers and directors liable for the acts of a corporation, this bill appears to be unnecessary even if not tending to complicate rather than to clarify the existing situation. It is to be hoped that it will be withdrawn, unless radically modified.

No. 4. Trade Relations. This bill, like No. 3 aims to revise the Sherman Law by defining other kinds of "monopoly." It also suspends the statues of limitations in certain cases under the Sherman Law, thus prolonging the period of uncertainty under the latter which is one of the heaviest burdens on business, especially when the action investigated was done in good faith, with intent to respect the law. As drawn, I regard this bill as unfair and bad because,

(a) It denies the natural right of a seller to grade his prices to customers of varying classes, credits, and value to him.

(b) It deprives the seller of protection against a disloyal agent.

(c) It would compel a seller to sell to an unwelcome and undesired customer.

(d) It discriminates against one industry, namely, mining.

In brief, this bill would operate in restraint of freedom of trade in many oppressive and unnecessary ways. I believe that its purposes, so far as good could better be effected under the administration of the proposed Interstate Trade Commission.

No. 5. Railroad Securities Issue Bill. As this has not yet been drafted and presented, it is not yet before us, and therefore cannot be discussed.

No. 6. Investigations. If well framed, a law similar to the Canadian "Combines Investigation" Act would be of immense benefit especially to the vast number of *minor industries,* the aggregate of which, both in volume of business and in number of persons engaged, far exceeds the aggregate of the so-called "trusts" or great corporations. Its aim should be not merely to permit, but to *encourage,* co-operation between small competitors in order,

(a) To enable the latter to resist the encroachments of their larger and more powerful competitors, and to survive.

(b) To check monopoly by promoting the welfare of the smaller units of industry.

(c) Especially, to strengthen American manufacturers and merchants in their ability successfully to compete with those of other countries in the neutral markets of the world.

The great merit and value of the Canadian act consist in its two fundamental features, viz.:

1. That actions which are on the border between what is permissible and what is not permissible, under either the common law or statutory laws, may be continued unless and until they are formally objected to by legal notice, and,

2. That if objected to, and if the objection is sustained by the appointed tribunal, there is no *retroactive* punishment, the penalties of the law only applying in case the actions in question are continued *thereafter.*

Such a law, if adopted by us, would at once tend to clarify the whole situation as to a vast number of cases and issues which at present are involved in doubt and would speedily build up a body of precedent, based on actual facts and conditions, which would within a few years determine conclusively the true intent of the law governing these matters as thus interpreted, and enable all concerned to regulate their doings in accordance therewith.

If such a law is enacted I suggest that the services of the Interstate Trade Commission should be utilized in giving effect to some of its provisions.

No. 7. Re-sale Prices. The regulation of re-sale prices is an issue which vitally affects the buyer and seller in every field. The arguments for and against permitting the seller to control re-sale prices are closely balanced, but a middle course should be sought, whereby, while the buyer is protected against extortion and monopoly, he is also protected in the benefit to himself of ability to purchase the article he wants, under its advertised name or trademark, and at the price established and advertised by the maker, with assurance that he is buying as favorably as anyone else.

A law which will accomplish the results thus implied will greatly benefit many important industries, especially those which aim at high and fixed standard of quality in their products, and also a vast number of consumers. Its chief effect would be to promote the improvement of quality in production and to maintain a high standard of trade morality.

To sum up: Legislation is needed, not to amend the Sherman Law, but rather to provide the method and means, the *mechanism,* for applying it effectively, promptly and easily, in harmony with the decisions of the courts to business as now conducted in all its phases. This will give rest, and rest and relief from uncertainty is what business chiefly needs.

An Interstate Trade Commission will furnish the needed mechanism; and most, if not all, of the *good* features of the four bills (Nos. 1 to 4 above) may well be incorporated in No. 1, while the *bad* features should be abandoned, thus giving to that commission the function of a "Court of First Instance" as to most of the cases arising under the Sherman Law, and furnishing business with a tribunal of information and advice to guide it in its effort to obey the law.

The tariff and currency questions are disposed of. The creation of an Interstate Trade Commission, and the enactment of a clear and simple law defining its powers and duties will complete the triad by disposing also of the anti-trust problem, so far as present legislation can wisely attempt to do so, and thus, by destroying past doubts and uncertainties, set the wheels of industry and commerce in motion, moving forward again on the highway of peace towards the goal of prosperity. Business asks nothing more—it will be content with nothing less.

True, this implies further work in drafting the new laws, but with co-operation between the representatives of business, sincerely desirous that such laws shall fairly give effect to the will of the people, and the representatives of the people, in Congress assembled, sincerely desirous that such laws shall fairly conserve the just rights and interests of business there will soon be written into the statutes new measures which will accomplish all that is thus implied.

Semi-Automatic Telephony in Europe.

It is stated that the semi-automatic telephone exchange in Dresden, Germany, is the largest of its kind in the world, being capable of affording provision for up to 100,000 subscribers. The present number of subscribers is 16,000. The Dresden exchange was commenced shortly after the opening in 1912 of a semi-automatic exchange at Posen; two exchanges on the semi-automatic system are also being installed in Leignitz and Leipsic.

A Study of the Use and Preservation of Wooden Poles

A Critical Examination of Wooden Poles for Telegraph and Telephone Lines—Extent of Use Throughout World—Question of Determining Value of Different Modes of Preservation and Species of Wood—Final Installment

By Dr. Friedrich K. Moll

The Turkish countries have been considered in connection with European Turkey. Of most other Asiatic countries, only the extension of the lines is known. The following, only, reported the number of poles and several other details.

31. India. The great part of the poles consists of riveted sheet iron tubes, wood being rejected on account of the termite danger. Termite-proof woods are too expensive to justify their general use from an economical point of view. Iron poles are produced in the country itself. The requirements for material amounted, in the year 1911, to 730 tons of sheet iron, 203 tons of zinc and 1,650 tons of cast iron, from which were produced 32,000 poles. From England, Swedish pine poles, creosote impregnated by the Bethell method, have been introduced and are reported to have resisted decay as well as termities. In the presidency Madras there is a remarkable line, the poles of which are granite pillars. The granite is easily cut into pillars and is cheaply obtained.

32. Ceylon. Iron poles of light construction are exclusively used. Wood is thought unfit. Good termite-proof wood is not to be found in the country and is only to be obtained at a high price from Australia. Concrete poles are not employed on account of their high price. Ceylon may be looked upon as a model for a culturally developed tropic colonial telegraph system.

33. French India. Besides great quantities of iron poles, native woods are used to a great extent. Of a total amount of about 185,000 poles the loss of the last year was about 13,000 poles, equal to about 7 per cent., which shows a comparatively satisfactory duration of these poles.

34. Japan. Employs native conifers and also exports considerable quantities to neighboring Korea and China. Nearly two-thirds of the million and more telegraph poles of Japan are preserved with copper vitrol by the Boucherie process, although, however, this method is not very satisfactory. The average duration of 12 years corresponds quite exactly to the Austrian number.

V. Africa.

Africa is, with the exception of the Southern and the Northern coasts, totally colonial new land. The lines obtain a great part of their material from Europe. The native wood is but little used. Much iron is employed all over the country. Where special details were to be obtained, they are given in the following:

35. Egypt. Egypt employs, for the most part, iron poles, besides which some few creosoted poles from England and North America are to be found.

36. German Colonies. In Eastern Africa hollow iron tubes (Mannesmann system) are employed, having a weight of 90 to 110 pounds, so that they are easily transported by two porters. The part standing in the ground is wrapped into several strata of tar-saturated cloth and the pole must be often repainted. In Togo, palm trees are taken. Only the strong heart wood being solid, thick trees are employed, cut into four to six poles by cross cut saws. The average duration is estimated to be seven years.

The telegraph lines of Southwestern Africa owe their existence partly to the war. Any available material in any way

COUNTRY.	Lines km.	Wires km.	Population.	Area sq. km.	Wires per Line.	Lines per sq. km.	Wires per sq. km.	No. of Poles.	Wires per Pole.	Poles per Inhabitant.	Annual Loss of Poles.
AFRICA:											
Egypt with Soudan.	5,300	23,000	12,000,000	994,000	4.3	5.3	23	78,000	...	..	.....
Abyssinia.....	.....	.....	6,000,000	540,000	..	..	..	.....	...	..	.....
Morocco	4,000	5,000	8,000,000	456,000	..	8.8	11	*50,000	...	..	.....
German Colonies....	7,000	9,000	17,000,000	2,640,000	1.3	3	4	*80,000	...	..	.....
French Algeria.....	15,021	38,661	5,000,000	479,500	2.6	31	80	*200,000	...	..	.....
French Tunis.....	4,717	27,152	2,000,000	129,100	5.7	26.3	150	63,215	470	31	.....
French Colonies....	29,842	39,613	35,000,000	5,600,000	1.3	5.5	7	312,352	127	110	.....
England:											
a—South Africa...	22,219	80,447	7,000,000	2,368,000	3.6	9.5	34	*300,000	...	..	.....
b—Colonies.....	*29,000	*60,000	33,000,000	3,900,000	..	7.5	..	*350,000	...	..	.....
Italian Colonies.....	1,457	2,307	750,000	490,000	1.5	3	4.7	29,200	80	25	.....
Portuguese Colonies	8,080	9,460	8,000,000	2,120,000	1.2	2.8	3.3	86,000	...	..	.....
Spanish Colonies....	.....	.....	700,000	224,000	..	..	..	.....	...	..	.....
Tripoli.....	3,007	3,007	11,000,000	2,045,000	1	1.5	1.5	27,677	110	400	.....
Congo Free State...	2,000	2,500	30,000,000	2,382,000	..	0.8	1.0	25,000	...	..	.....
Total.....	123,000	305,000	180,000,000	29,800,000	2.5	4.0	10	1,570,000	190	110	*150,000
ASIA:											
Arabia.....	.....	.....	2,000,000	2,473,500	..	..	..	.....	...	..	.....
China.....	45,260	80,407	335,000,000	11,300,000	1.8	4	7	*700,000	...	..	.....
Afghanistan.....	.....	.....	5,000,000	558,000	..	..	..	.....	...	..	.....
Korea.....	12,000	28,000	14,000,000	219,000	2.3	55	130	*440,000	...	..	.....
Japan .....R T	63,299	367,291	54,000,000	455,000	5.8	150	870	1,146,000	320	46	60,000
Siam.....	7,272	10,615	7,000,000	556,000	1.5	11	17	99,501	106	70	.....
Persia.....	11,000	.....	9,000,000	1,645,000	..	6.7	..	*150,000	...	..	.....
Ceylon.....	2,800	8,000	.....	.....	..	..	..	50,000	...	..	.....
India	124,000	480,000	300,000,000	4,522,000	4	25	105	1,900,000	...	..	.....
English Colonies....	.....	.....	7,000,000	398,000	..	..	..	.....	...	..	.....
Russia.....	20,000	30,000	25,000,000	16,668,000	..	1.5	..	.....	...	..	.....
French Indies.....	14,076	24,247	20,000,000	820,000	1.7	2	..	185,364	132	100	.....
French Colonies.....											
Netherlandish India.	9,838	17,112	40,000,000	1,521,000	1.7	6.5	11	135,457	126	300	.....
Portuguese India....	270	440	1,000,000	20,000	1.6	13.5	22	3,211	...	..	.....
Philippine Islands..	2,272	4,400	8,000,000	296,000	1.9	7.7	15	*30,000	...	..	.....
Turkey.....	28,422	49,909	18,000,000	1,767,000	1.8	16	38	408,076	122	44	.....
Total	340,000	1,100,000	840,000,000	43,400,000	3.6	8	28	5,240,000	220	128	*500,000
Grand total for world (approx.)	3,700,000	17,800,000	1,670,000,000	136,500,000	5	25	126	6,400,000	280	26	6,400,000

*Estimated.

Table No. 3. Pole and Wire Statistics of Africa and Asia by Countries.

suitable was taken for poles; thus, many lines today consist of angle iron and rejected rails, which is quite safe, the strain on the lines from the wires being little, and additional strain on the lines by snow and sleet not occurring.

37. French Colonies. About 60,000 poles of a total of 312,352 poles, are of iron; the rest are of native wood. Long parts of the lines are fastened to living trees. The colony of Gabon lost, in the last year, about 21 per cent. of its 19,560 wooden poles; in Lenegal and Nigeria as much as 40 per cent. was destroyed by the termites. These are numbers far surpassing our losses by decay. In spite of the total renewal of the full amount of poles necessary every two to four years, a more solid material has not yet been introduced, which may be only explained by the extraordinary difficulties of transportation.

38. South African Union. Only recently the South African countries have united themselves into a confederation, and a great part of the land is in the hands of private companies, so that there is no uniform plan to be found. More than half of the poles in the state and private lines are of iron. The Colony of the Cape possesses a great number of creosote oil full impregnated poles which have lasted exceedingly well against the chief danger of the country, the termites.

39. Tunis. Tunis practice is wholly patterned after the French methods. The poles, about 63,000, are all of pine, preserved with copper-vitriol, the duration of which is, as in France, on the average 15 years.

40. Congo Free State. With the exception of one line where iron poles were not to be procured, all the lines are constructed with iron poles. The load being low, the employed T irons are completely sufficient. The poles having a length of 21 feet and a weight of about 165 pounds, they can easily be transported by two men.

41. English East Africa and Uganda employ about 25,000 iron poles, about 22,000 well dried native cedar or juniper having a duration of five years, and about 12,000 fig poles, with a duration of five years.

SUMMARY.

(1) Poles of armed concrete have been tried in single cases and, on the whole, they did not show any superiority to wooden poles.

(2) Iron poles. Iron poles of different construction are employed. Their number in Europe is very low and may be estimated at from 12,000 to 13,000. In general, they are used on support only at points of very great strain. In South America, where the lines for the greater part have been built by private companies, there may be found about 100,000 iron poles. Furthermore, the great part of the systems in the tropics, the African Colonies, as well as in India and Ceylon, is provided with iron poles. The weight of the poles does not exceed 160 pounds on the average. In spite of the higher price and considerable cost of maintenance, they cannot be dispensed with in the tropic countries, as, at the present time, it is impossible to cover the requirements with preserved wood, and also as termites will very quickly destroy untreated wood.

(3) Living Trees. In remote districts, the lines are fastened for great distances on living trees (in Tunis, Asiatic Turkey, Congo, Senegal and Australia). Likewise in Europe (Bavaria and Sweden), especially in woody, mountain countries, the wires are attached to living trees for long distances, which, however, is only regarded as a makeshift in cases where poles are not to be obtained or not without comparatively great cost on account of difficulty of transportation.

(4) Wooden poles. At least 95 per cent. of all poles are of wood. Only a few kinds of wood are solid to such a degree in the untreated state that preserving is not necessary. Regarding only the European and North American lines, which comprise at least three-fourths of the total amount, the following table may be made for untreated wood.

Kinds of Wood	Average Duration in Years
Poplar	2
Pine (Norway, Sweden, North America)	5
Oak	7
Mountain Pine (in dry ground), pitch pine (Switzerland, Turkey, America)	7
Cypress (juniper)	7
Larch	9
Chestnut	12
Cedar	14

Only the poles are entered on which there are reports available. Oak has the same low duration throughout the world. On the contrary larch (Austria), chestnut (North America, Italy and Spain) and cedar (North America), may well stand a comparison with preserved woods of other species, chiefly pine. They will, therefore, be used in great numbers in all places where they may be obtained on the spot and where transportation is comparatively expensive, as in the mountain parts. Preserved poles, also, consisting almost entirely of pine, show in nearly all countries a great uniformity of duration, as shown by the following table:

Method of Preservation	Number of Observed Poles	Average Duration in Years
Boucherie method (Europe, Japan, Tunis)	10,000,000	14
Kyanizing (Europe)	2,000,000	16.5
Creosote oil preservation, full cell process (Europe)	3,000,000	24
Zinc chlorid (Germany)	200,000	12

No exact figures are available on the Ruping method, on preserving with mixtures of zinc chlorid and creosote oil, etc. In nearly all countries of Europe at first, the Boucherie method enjoyed great favor and was the most extensively developed. From the year 1900, a change took place, for the method proved to be insufficient for the demands, and kyanizing and creosote oil preservation proved to be far superior to it. England, having abandoned the Boucherie method about 1870, numerous other countries followed, and a substitution for it in some countries of copper vitriol by more vigorous substances, keeping the technical methods of the process, was adopted. In most cases, kyanizing and creosoting plants were erected. Nearly contemporaneously with the invention of Dr. Boucherie, Bréant announced his patent on preservation of wood with zinc chlorid. This method as well as impregation with a mixture of creosote oil and zinc chlorid, has been employed for telegraph poles only to a small extent. The results remain even far behind those of the Boucherie method. Only for Germany the average duration of zinc chlorid poles has been ascertained to be 12.2 years.

The best results, considering the economical conditions, have been furnished by the preservation with sublimate and creosote oil. The average duration of the first method is 16.5 to 17 years, of the other 24 to 25 years. As to how much the result of kyanizing is influenced by the fir wood, which is much less solid and not capable of satisfactory impregnation, and which is mostly employed in Southern Germany, is not known. Whether the recently more used empty cell processes, as Rüttger's (Vienna) and Ruping's, will prove as successful, cannot be decided at present. They owe their introduction to greater cleanliness, compared with the full impregnated poles and to the rising price of oil. While the price of sublimate has remained nearly stationary since 1860, creosote oil has grown more and more expensive and a change is not likely to occur in the following years. In the northern countries creosote oil is preferred; in the south, where the dry heat causes rapid exuding and evaporation of the oil, salt impregnation is preferred. Furthermore, the choice is influenced by the conditions of transportation and customs, especially for trans-marine use.

Creosote oil is more confined to the neighborhood of the place where the creosote is produced, the substance of impregnation being too heavy. Even with the empty cell process not less than five pounds per cubic foot of wood is required. On the contrary the amount of salts is only ½ pound per cubic foot in the case of zinc chlorid and only 1-20 of a pound per cubic foot in the case of sublimate. Boucherie and kayanizing plants can be erected for smallest quantities, thus there are kyanizing works in Germany and Austria for an annual supply of 100 poles. Though the simple "imbuing" method has kept up until today, the high efficiency of the sublimate makes this process of economical importance, and it will continue as at present for both the small and large industry. For great plants kyanizing will have to be improved upon by employing cylinders for impregnation under pressure, constructed of armed concrete.

Which proceeding is to be preferred cannot be decided except from instance to instance, as is clear from the foregoing. Only the economic interest of the user will be authoritative. One point, however, is undoubtedly certain, namely, that artificial preservation of wood is today one of the most important functions for every up-to-date telegraph and telephone administration, and that our methods of preservation enable us to double, even quadruple, the average duration of our chief pole material, i. e., of pine wood.

(*Conclusion.*)

Patents and Their Relations to the Telephone Industry

Telephone Industry's Beginning Marked by Patent Controversy—Bell's Guardianship of Its Patent Rights—The Many Inventions Outside the Bell Laboratories—Where Independent Telephony Has Blazed the Trail—Proposed Capitalization by Independents of "Patent Rights to Use"

By Garrison Babcock

The telephone entered the field of industry with a patent controversy between Professor Bell and Elisha Gray. That contest resulted in some changes in Patent Office filing methods. However, the Bell patent established monopoly, which from its inception to the present day has been capitalized in the three phases of patent monopoly: Manufacture, sales and use.

At each stage of advancement in the art, a new name has entered into prominence, due to the successful issue of a patent, through the various stages and courts of a patent interference, which usually attends an important invention.

The Bell company has at all times asserted a watchful eye for outside "inventions" and curiously the greatest advancements in the art have been developed outside of the Bell laboratories—Edison's electric transmitter, Pupin line loading, Lundquist percentage automatic switching, and literally hundreds of minor improvements. Because of the fact that the Bell stock issues, internal contracts, licenses, purchases, and even income from subscribers and toll users, is based, primarily, on one or more of the three patent values, the Bell company has zealously regarded its own and aggressively regarded other patent rights.

In the early days, the Bell agents, under court orders, sought out "contraband" telephones and burned them in public places. Later, as their early patents expired and "upstarts" appeared on the market, patent suits and threats of all kinds of trouble were more or less successfully used against the Independents, who surged into the field and in the course of a few years increased the number of telephones in use from a few hundred thousand to as many millions.

The one element of difference between Bell and Independent interests lies in Bell patent capitalization and Independent patent dissipation.

In the telephone beginning, territorial "rights to use" was the rule by which the present Bell licenses were created and as rates were so high, there was little necessity to capitalize manufacturing and sales patent rights, but when increases of capitalization became necessary, the outstanding manufacturing licenses were collected and the Western Electric Co. was created the sole manufacturer and made a subsidiary of the parent company. Here enters the complete capitalization of patents—the Western Electric stock, which was principally owned by the A. T. & T. Co., was the channel through which manufacturing and sales patent profits returned.

The millions which this element of telephone patents has paid to the Bell company may be estimated by a calculation of Western Electric dividends. This profit, however, has been a mere pittance as compared with the patent license to use. Three dollars per telephone instrument, annually, counts up rapidly as the years roll by, and millions of telephones are installed, but when one dollar per switchboard line equipment, and more for "composite sets" and switchboard operators' sets are added, there has been an "Alladin" in the industry for the Bell company, through its non-competitive field, which has astounded the competitive field and enabled the "ruinous rate war" to be carried to the limit.

Today the license contract has been replaced largely by "general engineering" charges of 4½ per cent. gross, and the recent annual report of the A. T. & T. Co. to its stockholders, after supplying a composite financial statement of the Bell companies at large, is mainly devoted to an exposition of its development, cables, receivers and automatic switchboards, by its staff of 550 engineers, representing 70 institutions of learning.

Over $50,000,000 of supplies from the Western Electric Co. with manufacturing and sales patent profit, added to the 4½ per cent. gross from subsidiaries, doubtless represents a sufficient sum to fill the author of the annual report with such sentiments as that expressed in one of the closing paragraphs:

> It can be said that this company has created the entire art of telephony and that almost without exception none of the important contributions to the art have been made by any government telephone administration, or by any other telephone company, either in this country or abroad.

The supreme assurance behind that statement, which has been reprinted in hundreds of daily papers and periodicals throughout the world, will have its good effect on stock and local good-will as desired and in all probability no thought was given to those inventors outside of the 550—70 bulwarks, who have contributed to the art quite in contradiction of the Bell statement and who will feed the imaginary "brass collar."

Independent telephony, while blazing the trail into homes of the farmer and common people, has carried the great traffic load of business in all of the cities, except those few metropolitan centers where the Bell has been successful in shutting out competition and in the face of "rate cutting," "free service," and "special privilege."

Inspired by new enthusiasm during days of expansion,

capital entered the field freely; manufacturers doing a large volume of business made close prices, with little regard to patent rights. Where real or imagined infringement of Bell patents occurred, suits were instituted and in each of these events, which were many, patent expense was incurred by the Independent interests. This expense was not restricted to Bell origin, as Independent manufacturers infringed, and sued each other, until the meaning of the word "patent" in the Independent field held only two factors, "expense and defense." The word "profit" in connection with "patents" was given no concerted and constructive being.

Legislation for Regulation Purposes.

During the past seven years "regulation" has entered the industry in practically every state in the Union, and the capitalization question is now restricted by valuation, and rate making holds closely to this factor also.

The vital question after satisfaction to the consumer is, therefore, valuation.

Book values and real plant values are admittedly at variance, as neither one has a rule by which they are established, other than by specific investigation.

Investigation of any of the Bell values will clearly show the items of "patents" and "engineering" have continued to grow along with the plant increase, while if any similar items should be found in an Independent plant, it would be on the other side of the ledger and of questionable consideration for allowance in rate making or capital increase. However, the instruments, switchboards and engineering of Independent plants have just as large real value as such items in Bell plants.

Independent manufacturers have vaults filled with patents and engineering records, which have created, protected and made it possible to supply the apparatus and plans for construction of these Independent plants. Of course, "rate wars" have in the past obscured this element of the Independent business as the fight for existence was too keen, but today under regulation and fair conditions in competition, the quality of service is first and valuation second in the effort for success and profit.

Future Valuation and Rates.

Any company having an ever-increasing list of complaints, and a subscribers' waiting list, is, of course, confronted with a more imminent problem; nevertheless, the valuation question is bound to enter the vitals of every operating company, and as there are legitimate revenues, connected with the business of nearly every company, such as real estate investments, sales of supplies, etc., which do not enter into the profits from service income, but do enter the net profit account, is it not reasonable that Independent, as well as Bell, should capitalize "patent rights to use"?

The one monopoly authorized by our government is that reward to genius and capital represented in inventions used in advancement of the public welfare.

Manufacturing and sales rights should be realized upon in the future and the "rights to use" carefully preserved to the territories occupied by operating companies. Quality is a feature which is always an element in the price established by the producer. It appeals to the judgment of the purchaser and may be safely left to individuals, but patent rights should be recognized by organization and concerted action.

The telephone is constantly undergoing improvements and modern methods are bound to be controlled by patents which involve genius in efficiency of service rendered, and economy of operation. The first should justify the inclusion of increased plant cost into the rate making valuation, where improved equipment covered by patents are used; and the economy should be capitalized in that account in the ledger. This will increase dividends to investors through patent rights to use, without reduction of rates.

Here enters the element of interest in which manufacturer, operator and trade journals will find mutual advantage. An investigation of the number and validity (uncontested) of patents involved in the equipment used by the Independent companies would undoubtedly increase our respect for past effort and future profit and enable the establishment of reclaimed values.

It would seem reasonable that preceding such an investigation by the national and state associations of Independent telephony, the manufacturers agree to issue to their customers an exclusive license, carrying into fact the assumed relation between supply and purchaser, and that the future might be improved by full realization and appreciation of what other industries enjoy and our government promotes.

If the national associations were enabled to make an annual report relating to the Independent industry from the same standpoint as that taken by the Bell company in its recent report and the patent situation capitalized, there would doubtless result a much increased demand for Independent telephone securities.

Business Men to Vote on Interstate Trade Commission.

In accordance with a resolution passed at the annual meeting of the Chamber of Commerce of the United States, the special committee appointed at that meeting has prepared its report and recommendations in reference to the proposed Interstate Trade Commission whose powers are defined in the bill recently reported to the House of Representatives by the Committee on Interstate and Foreign Commerce. The conclusions of the committee contained seven proposals in referendum form which were mailed to 543 commercial organizations in 47 states, constitutent members of the national chamber, and the votes of these organizations, when recorded, will be made public and will represent the view of the national chamber with reference to the proposed commission.

The seven definite recommendations to be supported or rejected by the membership of the Chamber of Commerce of the United States are as follows:

1. That there be created an Interstate Trade Commission of at least five members appointed by the president and confirmed by the senate, not more than a mere majority of whom shall be of the same political party.
2. That jurisdiction of the commission in conducting investigation extend to all corporations engaged in interstate or foreign commerce, except such as are amenable to the Interstate Commerce Commission. (It has not been judicially determined whether or not banks are engaged in interstate commerce, but it is understood to be the purpose of the bill creating an interstate trade commission to include banks among the corporations placed within the jurisdiction of the commission.)
3. That the commission should not be given authority to advise applicants concerning the legality of proposed contracts, combinations, etc., under the Sherman Act.
4. That the annual reports of corporations, if required, should at the outset be confined to those of the larger corporations (say, to those having capital resources of $5,000,000 or more; or to those having an annual income of $2,500,000), and to such other classes of corporations as the commission may officially determine.
5. That in the annual reports made to the commission, corporations ought not to be required to disclose trade-processes, shop-costs, classifications of sales and profits among particular articles, names of customers, or other like private information.
6. That the publication of facts obtained by the commission be confined to such as are to the public interest.
7. That congress should direct the commission to investigate and report to congress at the earliest practical date on the advisability of amending the Sherman Act to allow a greater degree of co-operation in the conduct, and for the protection, of the foreign trade.

The Rejuvenation of the Craneville Telephone Exchange

A Serial Story Telling How a Rundown Telephone Plant Was Rebuilt, Enlarged and Changed Successively from a Grounded to a Local Battery Metallic System and Later to Common Battery —Problems Encountered by Every Practical Telephone Man

By Paul Hamilton

"Frank," said Mr. Barrows one morning, "I think we had better take the Doctor and start out this morning to locate the poles for that farmers' line east. Meanwhile Germany can look after the exchange and get a gang of diggers lined up to begin digging tomorrow morning. You can turn in tomorrow and start distributing poles. We will look up some teams as we go along the line. It has been my experience that farmers will not only demand less pay but also prove more efficient than teamsters from town. Anyway, they are entitled to the little there is to be made from this job."

"What for are all these little pegs?" asked Germany, as Frank and Mr. Barrows were about to climb into a road wagon standing in the rear of the office.

"We are going to set these little pegs right where we want your men to dig the holes. On the side of each stake you will find a mark telling how deep the hole should be. I'll be around this evening and go over the digging work with you. If you can get about ten men, you will have gang enough, I think. They should have long-handled shovels."

"Drive out East avenue, Frank. We will start from there," Mr. Barrows directed as they came into Main street.

"I expected we would break off from the alley south of Pine street?" said Frank, inquiringly. "That means the east road. We'll have to make a turn, anyway."

"Yes, that is true, but by going out south of East avenue, we can make the two corners on electric light poles and break directly into the east road without crossing Pine street," replied Mr. Barrows.

When they arrived at the point where the east road entered the city limits, Mr. Barrows directed Frank to stop.

"Here is our starting point. Get out those three locating poles. Here are three red flags to fasten to one end of them. We will set one on a line with this north and south fence, and two feet from the east and west fence."

"Is that as close as we can get to the fence?" Frank inquired.

"It is close enough, because some day we may want to put on a four-foot arm and we would not care to have it overhang private property."

"I didn't suppose that would make any difference, as long as the poles were in the road?"

"Yes, it does, if the owner cares to object. Now, Doctor, take one of the poles and go up the road to the top of the first hill and set it two feet from the fence. We have a nice level stretch to begin with. Keep your eye on the Doctor, Frank, and make sure you can see the flag after he places the pole."

When the Doctor had gone, Frank and Mr. Barrows made preparations to take up the work of locating the poles.

"The first pole must be a 25-foot one, so we will mark a stake '4'. The next ten poles, at least, will be twenties, so we can mark that many stakes '3½'."

Frank began putting the stakes in his coat pockets.

"Never mind that, Frank," Mr. Barrows said as he noticed Frank's action. "You'll have to leave your coat in the wagon. You'll be plenty warm walking through the weeds and brush, hauling the tape after you. You'll have to carry one of the poles, also. When the Doctor gets the pole set, we can begin. I have marked this 200-foot steel tape at 175 feet, which will be the regular length of a span, setting 30 poles to the mile.

"The idea of using the flag poles is to get our locating stakes in line. Now that the Doctor has the flag set, we will locate the first two poles. Drive the first stake where the pole stands. Now take the pole and the end of the tape and walk on ahead. I'll hold the reel and stop you when you go a distance equal to the length of the first span. As we have a short span crossing the street, we can make this span full length, or 172 feet. Whoa! There you are! Now set the pole at the end of the tape and let me line it with the other pole—there you have it. Set a stake there marked '3½'."

"You are going to make a five-foot drop?" Frank asked.

"Yes. That is the general practice nowadays. It is simply a waste of a 25-foot pole to grade two and a half feet. Go on ahead and we will line up another stake so the Doctor can see what we are doing.

"Frank, you may as well start off ahead and give the Doctor a turn at it later on. You need not carry any stakes. I'll drive along and throw the stakes in to you as you need them. At the same time, I will make a line record for use in distributing the poles and for use in the office afterwards. I have a field book here for the purpose."

"What is the other flag for?" Frank asked.

"We will need it when we come to measuring at corner poles," was the reply.

The flag the Doctor had carried forward was soon reached, 17 stakes having been set. Here they encountered a growth of underbrush which made the work more difficult. It was difficult for Frank to see the line flag so the third flag pole was spliced to it. Only five poles were located in the brush, and Mr. Barrows made a note that the matter of having the brush removed should be taken up with the proper parties.

The next stretch was less than six spans to where the direction of the road changed slightly. This put a very slight corner on the twenty-eighth pole. To make the pull short enough to avoid setting an anchor, the spans each side (the corner span) were shortened to 130 feet.

"Before we finish at this corner, we will have to set the next lead flag. When that is done, locate the next pole, and get for me the pull on the pole like this," said Mr. Barrows, making a sketch.

"Now, Frank, go to pole No. 27 (Fig. 84) and give the Doctor the third flag and have him line it between poles

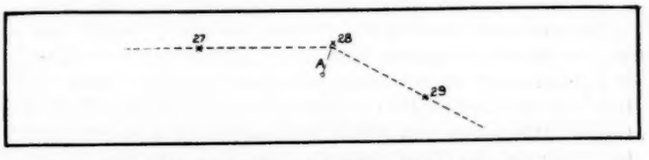


Fig. 84. Methods of Locating Pull on Pole.

27 to 29. Then measure from the flag at *A* to the stake for pole No. 28."

"Two feet and one-half," Frank called out after doing as directed.

"All right, move the location stake for the corner pole into the road 18 inches."

"Why was that?" Frank asked, after the stake had been moved.

"That is to allow for rake on the pole and to keep the top in line."

"This stake is marked '4'. Do you want a higher pole here?" Frank inquired.

"No, but by having a pull on the pole, we consider that we have added a strain equal to the additional five feet,

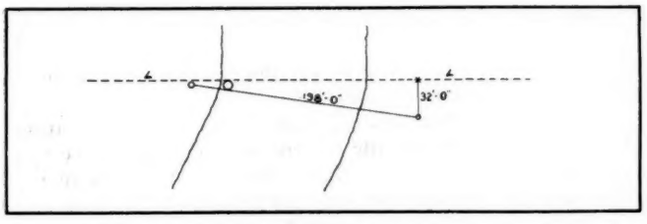


Fig. 85. Triangle Method of Measuring Span.

so we will set it six inches deeper than the poles in the straight line."

At a point about two miles from the town limits, they came to a small ravine which at the time had the appearance of being a navigable stream. It was full from bank to bank.

"You'll have to swim it, I guess, Doc, and carry the tape in your teeth," said Frank. "Then you can come back around by the bridge and get the flag."

"It will be a short span. I can almost jump it," answered the Doctor.

"You might make it in three jumps." said Mr. Barrows. "There are two ways of measuring that span. One is to go out into the road and measure across the bridge."

"It is going to be a long span, to my way of thinking," commented Frank. "That first shelf washes out about every other spring. We've got to put the pole on the high bank above. That will bring the wires right through that sycamore tree."

"I s'pose we can cut that tree," the Doctor remarked.

"That is the best solution, generally speaking," said Mr. Barrows.

"Well," Frank remarked, looking thoughtfully at the tree and its location, jutting out as it did from the steep bank. "It's dollars to doughnuts you can't cut that tree. That is a pretty good sized farm, I'll admit, but there isn't any of it to spare. There is a slight bend in the creek right there. If you cut that tree, some fine spring morning the creek will be booming along over there about four rods and the west end of this bridge will be out in the middle of it. No, there isn't a chance in the world of cutting that tree. We'll have to trim a hole through it some way."

"You are probably correct, Frank. That tree no doubt holds the bank in place. Now about this span: Take your location flag and set it on the high bank on the east side and line it up. Then measure to a point here in the road at right angles to the flag. What is it, Doctor?"

"One hundred and ninety-eight feet. All right, Frank. Let's get the distance from here to the flag. Thirty-two feet, Mr. Barrows," said the medical student. "Now you can figure the length of the span."

"Yes, I can get it now, I guess."

"How?" Frank inquired.

"It's like this," Mr. Barrows explained (Fig. 85). "Here we have what we call an hypothenuse triangle, which is a right angle triangle with no two sides equal. We also have the measurements of two sides, the long and short, or the hypothenuse and base. The difference between their squares gives a square area of which the other side of our triangle would form one of four equal sides. By taking the square root of it, we have the length of our span, which is how much, Doctor? I see you have been figuring it."

"I get 195.4 feet," the Doctor answered.

"We could have done it easier by measuring in the road," said Frank.

"All right, try it. Fix a point in the road at right angles to the stake and flag, and measure it," Mr. Barrows directed.

Measuring by the second method, they made the span 194 feet.

"The difference lies in not getting your points in the road at right angles to the line. By the first method, we only have a chance for one error, which would have to a very great one to make a difference of a foot. By the second method, we have a chance for two errors. Either method, however, is near enough accurate for our purpose.

"Now that we have had a little breathing spell, we will start on again," said Mr. Barrows, whose object had been to give the men a chance to rest. They had been going at a "hurry-up" gait, and it had commenced to show its effect on the Doctor.

They returned to the exchange early in the evening and Mr. Barrows explained the contents of the field book to Frank.

"I have noted all the information we are liable to need in connection with this line. I have shown each pole, with the length of each span in feet, and can readily find the length of the line. We will also measure the loops and have all the information we need in connection with them. I shall transfer this information to a loose leaf file to be kept in the exchange.

"The first use we will make of this book, will be in loading the poles. In loading the wagons, you can take the book and check them as they come in regular order; that is, on the first load, you can put probably ten twenties and so on, according to what the driver thinks is a safe load. As you come to the longer poles, load them in order and instruct the driver how to distribute his load. This will bring the longer poles about, if not exactly, where you will want them.

"You will have to saw the butts off of all the twenties, and before you let them leave the yard, give each a good coat of crosote about a foot below and a foot above the ground line, or rather where the ground line will come after they are cut down. I believe it acts as a preservative on old poles and it certainly keeps the ants and worms out of them for awhile. How many men did you find, Germany?" Mr. Barrows went on.

"Ten anyway, and maybe a dozen."

"Well, you can begin digging in the morning. The stakes are set where the center of the hole should be. Have each man mark out the hole before he pulls the stake. Make the holes plenty large and pile the dirt on two sides. If you pile it all the way around the hole, some of it is apt to be

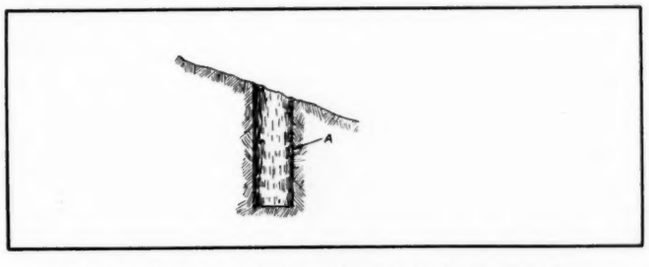


Fig. 86. Side on which Depth of Hole is Measured.

rolled back in when you are getting ready to set the pole. In most cases you will raise the pole from the road side, so leave that side of the hole clear.

"The best way to measure holes is to have a mark on the handle of each shovel 3½ feet from the handle end. This will bring the mark, or notch, down where it will not come

in contact with the hand in using the shovel. The depth of a hole (Fig. 86) should be measured from the lowest side, *A*.

"In addition to the regular tools for digging, you ought to have a couple of axes, a brush hook, and a couple of chisel bars for cutting roots, would be very handy."

"Those chisels they use to clean ice off the sidewalks? I know where to get some."

"They are hardly heavy enough."

"Didn't they have tools like that at the brickyard, Germany?" Frank inquired.

"Maybe. If they did, I can get him."

"Well, I guess that will be all for today, boys. I have some figuring to do," and Mr. Barrows sat down at his desk. "You will find this field book here on the desk in the morning."

(To be continued.)

Joint National Committee on Electrolysis.

At the first meeting of the men now constituting the Joint National Committee on Electrolysis, held in New York on May 27, 1913, it was decided, owing to the fact that certain national associations had not at that time appointed representatives to serve on the committee, to have a temporary organization only and await the meeting of the full committee before perfecting a permanent organization.

At this meeting the objects of forming such a national committee were set forth by different members. Bion J. Arnold was appointed temporary chairman, and he was requested to confer with the national organizations not at that time represented on the committee.

Two regular meetings of the Joint National Committee on Electrolysis were held in the rooms of the American Institute of Electrical Engineers, New York, last month, and at the first one B. J. Arnold was made permanent chairman of the committee.

In order that the work of the committee could be laid out, and a definite plan of action be decided upon, it was voted to confirm the appointment of the following members of a plan and scope committee, whose duty it would be to prepare a tentative plan to be submitted to the joint committee for consideration: Calvert Townley, chairman, representing the American Electric Railway Association; E. B. Katte, representing the American Railway Engineering Association; H. S. Warren, representing the American Telephone & Telegraph Co.; D. W. Roper, representing the National Electric Light Association; F. N. Waterman, representing the American Institute of Electrical Engineers; A. F. Ganz, representing the American Gas Institute; and W. J. Broder, representing the Natural Gas Association of America.

At the request of Chairman Arnold, Mr. Townley gave the following outline of the general scope of the committee, for the benefit of those representatives who had been recently appointed and were therefore not present at the preliminary meeting in May, 1913:

Electrolytic controversies have in the past given rise to unnecessary and acrimonious disputes, and not infrequently have resulted in litigation between the corporations concerned. The usual procedure in disputes of this kind has been for each side to employ one or more electrical experts who generally disagree as to the cause of the trouble and the remedies therefor. The dispute sometimes gets into the newspapers, occasioning unpleasant notoriety, and resulting in more or less drastic municipal action by the city government concerned.

Much of this could be avoided if a body, such as this committee, could be created which would consider broadly the questions covered by the controversy, without attempting to pass upon the questions at issue, but to report back to their respective organizations so that in time the committee would come to be recognized as a neutral body whose decisions would be authoritative, the same as the standards committee of the American Institute of Electrical Engineers in connection with matters of definition and standardization, which is a recognized authority that nobody ever attempts to question. With that end in view, the Institute initiated the movement to organize a national body to consider the general subject, and agree upon any basic principles or methods of procedure to be followed in the case of electrolytic disputes. Now that the organization of such a body has been accomplished, it remains for the committee to determine what lines of action to take.

Mr. Townley stated that in correspondence he had had with different people, the purpose of the committee was frequently misunderstood; that the impression prevailed in some cases that the committee was going to act as an arbitration board in controversies, and would tell what ought to be done, thereby taking the place of executives or the courts.

A preliminary report was presented by the committee on plan and scope, and after discussion the following resolution was adopted:

"Resolved, That the chairman be authorized to appoint committees as informally recommended by the plan and scope committee, to collect information as outlined in the report, and that the committee on plan and scope be continued and requested to report further at the next meeting of the joint committee."

Chairman Arnold thereupon announced the appointment of the following committees: Principles and definitions: Dr. E. B. Rosa, chairman; Methods and analyses of surveys: J. D. von Maur, chairman; Foreign practice: Philip Torchio, chairman; and Domestic practice: F. N. Waterman, chairman.

The organizations that are represented on the Joint National Committee on Electrolysis and their representatives are as follows:

American Electric Railway Association: R. P. Stevens, president, Lehigh Valley Transit Co., Allentown, Pa.; Prof. A. S. Richey, consulting engineer and professor of electrical engineering, Worcester Polytechnical Institute, Worcester, Mass.; and Calvert Townley, assistant to the president, Westinghouse Electrical & Mfg. Co., New York.

American Railway Engineering Association: E. B. Katte, chief engineer, electric traction, N. Y. C. & H. R. R. R. Co., New York; D. J. Brumley, engineer, maintenance of way, Illinois Central R. R. Co., Chicago; and W. I. Trench, division engineer, Baltimore & Ohio R. R. Co., Baltimore, Md.

National Electric Light Association: Philip Torchio, chief electrical engineer, New York Edison Co., New York; L. L. Elden, electrical engineer, Edison Electric Illuminating Co., Boston, Mass.; and D. W. Roper, assistant to chief operating engineer, Commonwealth Edison Co., Chicago.

American Telephone & Telegraph Co.: H. S. Warren, electrical engineer, New York; F. L. Rhodes, outside plant engineer, New York; and A. P. Boeri, protection engineer, New York.

American Institute of Electrical Engineers: B. J. Arnold (chairman), consulting electrical engineer, Chicago; F. N. Waterman, consulting engineer, New York; and Paul Winsor, chief engineer motive power and rolling stock, Boston Elevated Ry. Co., Boston, Mass.

National Bureau of Standards: Dr. E. B. Rosa, chief physicist, Washington, D. C.

Natural Gas Association: B. C. Olyphant, Iroquois Natural Gas Co., Buffalo, N. Y.; W. J. Broder, Columbus, Ohio; and Forest Towle, New York.

American Gas Institute: Prof. Albert F. Ganz, consulting engineer and professor of electrical engineering, Stevens Institute of Technology, Hoboken, N. J.; J. A. Gould, engineer of distribution, Boston Consolidated Gas Co., Boston, Mass.; and Jacob D. von Maur, superintendent of distribution, Laclede Gas Light Co., St. Louis, Mo.

Proceedings Before Commissions, Courts and Councils

Discussions and Rulings of State Bodies Having Supervision of Telephone Companies, Decisions of Courts in Matters Affecting Public Relations of Utilities and Actions of City Councils Bearing Upon Franchises, Rates and Service

Federal Company Files Appraisal of Property in Buffalo.

Complying with the order of the New York Public Service Commission at the rate hearing in Buffalo, the Federal Telephone & Telegraph Co. has filed with the commission at Albany and the corporation counsel's office in Buffalo, an appraisal of the physical valuation of the property of the company in Buffalo. On this appraisal hangs the decision of the commission with regard to the company's petition for permission to put into complete effect its new schedule of rates.

The report which has been filed shows that the property is valued at $4,460,000. It is the claim of the company that this finding warrants the higher rates for telephone service throughout the city on the ground that, under the old rates fixed by the franchise granted by the city in 1901, a fair return is not being received on the company's investment.

"It is our claim that a valuation of from $3,000,000 to $3,500,000 would be sufficient to justify the new rates," said Burt G. Hubbell, president of the company, in commenting on the report.

At the hearing before the public service commission it was set forth that the company desires to charge a maximum rate of $72 a year for business telephones, besides making other changes in rates for such service. The rates on residence telephones are affected only in the increase of the charge for a four-party line from $15 a year to $24, with unlimited service. President Hubbell says that 90 per cent. of the subscribers have agreed to the new rate.

New York Commission Given Power to Suspend Rates.

Governor Glynn of New York has signed the Healey bill, which was passed by the legislature, giving the Public Service Commission power to suspend advancements in rates of public utilities until the commission has investigated the matter. The governor also signed the Torborg bill, permitting the Public Service Commission to authorize contracts for telephone booths in subway stations.

Competitive Question Before Canadian Board.

The Dominion Railway & Municipal Board of Canada has under consideration the testimony taken at a hearing on the application of the Port Hope Telephone Co., of Clarke, Ont., for toll connection at Bowmanville with the Bell Telephone Co. of Canada under the "non-competitive company" rule of the board. The chief point at issue at the hearing was as to whether the Port Hope company is or is not a competitor of the Bell.

Solicitor E. H. McLean, of the Port Hope company, said that the company's head office was at Newtonville, and on the east the line extended to Port Hope, while on the west it stretched to Bowmanville, where it terminated in a pay station of its own. In Port Hope the company only had 12 subscribers and every one of these subscribers had also a Bell telephone. In the township of Clarke the company had 140 telephones, while the Bell had none and in Hope township the Bell had no telephones while the Port Hope company had 81. In Darlington the company had only one subscriber, who also had a Bell telephone, and in Bowmanville there was only the pay station, where a Bell telephone was also in use. It was declared by Mr. McLean that these conditions were not competitive. The Bell representatives contended, on the contrary that the Port Hope Telephone Co. was "competitive" and that to let it into Bowmanville was to give it further power in its competition. Subscribers, he said, could talk between Port Hope and Bowmanville without using the Bell's trunk line and that this constituted competition.

Under the ruling of the Dominion board covering "competitive companies" the Port Hope Telephone Co., upon securing connection, would have to pay the Bell company 15 cents for every message, but Solicitor McLean declared this would be a discrimination as other Independent companies enjoyed the advantages of lower rates for their long distance connection. He suggested a charge of five cents on either company for local messages.

Prof. Cooley of Michigan Witness in Pennsylvania Hearing.

At a recent further hearing at Harrisburg, Pa., in the investigation being made by the Pennsylvania Public Service Commission into the telephone situation the Bell Telephone Co. of Pennsylvania and the Central District Telephone Co. continued the presentation of their case. One of the principal witnesses was Prof. Mortimer E. Cooley, dean of the department of engineering of the University of Michigan.

In going into the matter of the appraisal, Prof. Cooley said there were four elements involved in investigations of public utility companies for rate-making purposes. These are: First, capital invested; second, operating expenses; third, depreciation; fourth, sinking fund. In going further into the first item, or that of capital invested, Prof. Cooley testified that the cost of the reproduction of the plant under consideration was of great importance. The important elements to be considered under this head are: First, the physical property which can be seen, and second, the overhead charges, which are not apparent.

Nathan Hayward, engineer of the Bell company, was recalled to the stand and testified that there are at the present time approximately 450,000 Bell telephones and 150,000 Independent telephones in Pennsylvania, making one telephone for every 14 people, or one Bell telephone for every 20 people. He also developed the fact that Iowa has the largest telephone development in the United States.

Mr. Hayward introduced in evidence a statement of the population and telephone development of the Bell telephone companies in the State of Pennsylvania from 1884 to 1914, showing the development by years. In 1884 the estimated population was 4,660,000 and the telephone companies had 8,856 stations in service. The per cent. of stations to population was 19, with less than 1,000 miles of toll circuit in use connecting 71 exchanges. On the first of January, 1914, the figures show an estimated population for Pennsylvania of 8,209,000 with 431,754 stations in service. On a percentage basis the statement shows 5.26 per cent. stations to population. The statement also shows that there are 53,423 miles of toll circuit in use connecting 393 exchanges.

Municipal Systems in Maryland Under Commission Rule.

The Maryland legislature has passed an amendment giving the Maryland Public Service Commission authority over all public service corporations owned and operated by municipalities, with the exception of the city of Baltimore, and over those owned by counties. It is reported to have been one of the most popular of all the commis-

sion's amendments. Heretofore the commission, it is stated, had much trouble with several municipally owned utilities and has been powerless to provide the necessary regulation.

Telephone Agreement Reached in Oakland, Cal.

After a recent short hearing before H. D. Loveland, of the California Railroad Commission, the Bay Cities Home Telephone Co., the Pacific Telephone & Telegraph Co., and the city of Oakland submitted for ratification by the commission an agreement whereby the Bay Cities company will transfer to the Pacific company, by which it was purchased in 1912, its franchise in the city of Oakland.

The transfer, which was approved by the commission, will result in the Pacific company's discarding its own franchise. By so doing it will get a franchise that will last 14 years longer than the one it now possesses, or one which will expire in 1954. Oakland has agreed to dismiss the suit now pending in an Alameda court, wherein $100,000 damages were asked of the Bay Cities company for the alleged violation of its franchise in allowing the Pacific company to use it. The Pacific company has agreed to give the city of Oakland 2 per cent. of its tolls, which during the period covered by the franchise, will enrich Oakland to the extent of $1,500,000 and will give it 220 free telephones for the use of its officials.

A California City Favors Commission Control.

At a recent election in Vallejo, Cal., charter amendments were approved delegating to the California Railroad Commission control in that city over various public utilities, including telephone companies.

Ohio Commission Modifies Appraisal Order.

An announcement was recently made at the headquarters of the Ohio Public Utilities Commission that interstate telephone companies doing business in Ohio will not have to make a separate valuation of their business for the state commission if they also make one for the Interstate Commerce Commission.

The commission has also extended the time when the valution must be completed from August 1, 1914, to February 1, 1915. The commission said that the date would be still further extended if at that time the Interstate Commerce Commission's appraisal is being made but is not completed.

The Ohio Telephone & Telegraph Co., of Cincinnati, Ohio, and the American Telephone & Telegraph Co. were the first to make application to the Ohio Public Utilities Commission for an extension of time in which to make appraisals of their properties, which the commission ordered to be completed by August 1.

The request for more time stated that the Interstate Commerce Commission has just begun the work of making the appraisal of all property, both real and personal, of all telephone companies, and that as experts of the company are requested to help, it requires the services of all the men who can be spared for this work.

The suggestion was also made that the appraisal of the Interstate Commerce Commission should be accepted by the state, inasmuch as it will be complete in every detail, and will cover everything that is wanted by the utility commission.

It is expected that some arrangements will be made to work in connection with the federal employes, so that the work of appraisal will not be delayed.

"Person" in Indiana Law Does Not Mean Subscriber.

Section 8 of the Indiana public utilities law reads as follows:

"Every public utility for the conveyance of telephone messages, shall permit a physical connection or connections to be made, and the service to be furnished between any telephone system operated by it . . . . and the telephone system of another such public utility . . . . whenever public convenience and necessity require such physical connection."

Paragraph B of the same section provides that "any person . . . . interested may apply to the commission, and if, after investigation, the commission shall ascertain that public convenience and necessity require such use or such physical connection . . . . it shall be ordered and directed . . . . that such physical connections be made," etc.

Corporation Counsel Pickens, of Indianapolis, is said to have been advised by the Indiana Public Service Commission that the commission interprets the word person as used in the act to mean a person engaged in furnishing telephone service and not a person who is only a subscriber.

Valuation Order Affecting Indiana Companies.

Telephone companies are included in the recent order of the Indiana Public Service Commission that all public service utilities must file with the commission a verified inventory of all property, excluding only those concerns upon which the commission has already fixed a valuation.

Telephone Suit of Frankfort, Ind., Dismissed.

The suit of the city of Frankfort, Ind., against the Central Union Telephone Co., in the United States District Court, at Indianapolis, has just been dismissed by agreement. The suit was brought in 1912, owing to the announcement that the company would increase telephone rates in Frankfort. The company has agreed to withdraw its demand for an increase in the service rates.

Attorneys for the telephone company say that no matter what had been the outcome of the case in the federal court the question of rate increase would have had to go before the public utilities commission, which body will now be called upon to settle the controversy, Judge Anderson agreeing this can be done without prejudice to either of the parties.

Injunction Against Light Company at Kewanna, Ind.

The Winona Telephone Co., of Knox, Ind., has obtained an injunction against the Kewanna Electric Light Co. to prevent the latter company operating until adjudication of the Winona company complaint that the light company has strung its wires in such proximity to the telephone company lines that the least wind or heavy sleet would cause them to touch. It is charged by the telephone company that the condition is dangerous to life and property.

South Bend, Ind., Board to Count Telephones.

The South Bend, Ind., board of works is to count the Bell company telephones there to ascertain whether the Central Union Telephone Co. is entitled to an increased rate for 5,000 subscribers. The company is charging the advance, and the justice of the charge is being denied on the ground of insufficient number of telephones.

Proposed Service Agreement at Ft. Wayne, Ind.

The Home Telephone Co., of Ft. Wayne, Ind., has made a proposition to the receivers of the Central Union Telephone Co. to consolidate their exchanges in Ft. Wayne, the Bell company to relinquish its local business, and give connection for all toll business.

To Boycott Mountain States Company in Colorado.

At a recent mass meeting of the patrons of the Mountain States Telephone & Telegraph Co., at Brush, Colo., 250 agreed to discontinue their telephones on May 1, when the new rates of the company take effect. A committee of five business men was appointed to take steps to organize an Independent telephone system and to co-operate with

Fort Morgan, Hillrose and Weldon in fighting the raise in telephone rates.

Patrons of the company at Ft. Lupton, Colo., are reported to have decided not to submit to the proposed increased rates. It is stated that capitalists already have organized another company that will construct a local telephone line. Articles of incorporation for $50,000 are being drawn. Most of the stock has been subscribed.

The plan is to take in a scope of territory with the new company from Lupton to La Salle and east and west of Lupton as far as subscribers can be procured, probably meeting the Brush local line and forming a network of wires that will serve that part of the country. Estimates on building the line already have been asked for.

Telephone Situation at Ottawa, Kan.

A new attempt is being made to solve the telephone problem in Ottawa, Kan., by Fred M. Harris, the new mayor. An organized movement to consolidate the Bell and Home telephone systems was made during the administration of the retiring mayor, A. H. Slater, but was unsuccessful. The Kansas Public Utilities Commission was asked to help, but nothing resulted. The Home system now is alleged to be inadequate, while the Bell system is operating without a franchise. Recently the officials of the Home company indicated their willingness to install a $75,000 plant, provided desirable rates can be obtained. A public meeting will be held soon and A. F. Adams, vice-president of the Kansas City Long Distance Co. will attend to present the claims of his company.

Summary of State Commission Hearings and Rulings.

ARIZONA.

March 2: Special order No. 33 limiting the exchange area of the Mountain States Telephone & Telegraph Co. in Phoenix to a radius of 1¾ miles, with the exchange as the center. Within this area, one-party business service rates, one-party residence service rates and four-party residence rates were fixed on the Class A basis.

March 2: Special order No. 46 dealing with the application of the Overland Telephone & Telegraph Co. to sell its assets to the Mountain States Co. After reciting that the former limit has been outgrown, the order changes the radius of $2 four-party automatic service to 2½ miles; orders the abolition of 10-party ranch service in this radius and the substitution therefor of automatic four-party service.

CALIFORNIA.

April 16: Decision granting authority to the Pacific Telephone & Telegraph Co. to surrender its franchise in Oakland and to take over and operate under the franchise of the Bay Cities Home Telephone Co., which the Pacific Telephone & Telegraph Co. purchased in 1912.

Decision No. 1360 granting request of the Southwestern Home Telephone Co. dismissing its complaint against the Southern Sierras Power Co.

ILLINOIS.

April: Order granting certificate of convenience and necessity to the Christian County Telephone Co. to install a telephone exchange in New Kincaid.

April: Order authorizing the Donovan Telephone Co., of Donovan, to purchase the property of the Local Telephone Co., of Clifton, for $6,000.

April: Order granting the Citizens Telephone Co., of Pekin, a certificate of convenience and necessity to build and operate a telephone exchange in South Pekin.

April: Order granting the Queen City & Shelby County Mutual Telephone Co. authority to increase rates and providing rates for switching service on county lines.

April: Order granting petition of the Christian County Telephone Co. of Taylorville, to eliminate certain discriminations in rates.

April: Order authorizing the National Telephone & Electric Co., of Clinton, to discontinue special rates to subscribers owning their own instruments.

April: The following cases were docketed for hearing by the Illinois Public Utilities Commission at Springfield, Ill., on April 20, 21, 22 and 23:

2245—National Telephone & Electric Co. of Clinton; application for establishing zone of districts for toll charges, etc.

2251—E. W. Tilson and N. A. Pond vs. Menard Telephone & Telegraph Co.; complaint as to rates and service of telephone company.

2254—Daniels Telephone Co., of Iuka, Ill.; application for authority to change rates.

2322—Washington Home Telephone Co., of Washington, Ill.; petition for approval and confirmation of rates; rules and practices.

2323—Macoupin County Telephone Co., of Abingdon, Ill.; petition for approval and confirmation of rates, rules and practices.

2325—Peoples Telephone Co., of Chillicothe, Ill.; application for approval and confirmation of rates, rules and practices.

2326—Home Telephone Co., of Henry, Ill.; application for confirmation of rates, rules, and practices.

2232—Streator Telephone Co.; application for authority to change rates in city of Streator and adjoining district.

2257—Manhattan Telephone Co.; application for authority to change rates.

2259—Hutsonville Telephone Co.; application for authority to change rates for telephone service.

2273—Greenup Telephone Co., of Greenup, Ill.; application for authority to change rates.

2274—Interstate Independent Telephone Co., of Aurora, Ill.; application for authority to change rates at Hampshire, Mokena, and Frankfort, Ill.

INDIANA.

April: Petition by the Citizens Telephone Co., of Dunkirk, Ind., for an increase of telephone rates. Patrons will fight the petition.

MARYLAND.

April: The Chesapeake & Potomac Telephone Co. has filed with the Maryland Public Service Commission copies of the agreements by which it is to take over the Rock Creek & Marley Telephone Co., of Anne Arundel county and the Highland Telephone Co., of Hartford county. The consideration for the Rock Creek company, as named in the agreement, is $7,750, and for the Highland concern, the amount is $19,000.

MICHIGAN.

May: Hearing on application of Michigan State Telephone Co. for metered service in Detroit.

NEBRASKA.

April 14: Hearing held at Hastings for the purpose of adjusting all matters in dispute before the local telephone company at Hastings is consolidated with the Lincoln Telephone & Telegraph Co. Business men and officials of the Lincoln Telephone & Telegraph Co. were asked to bring up all points of difference. The telephone company asked the commission to adopt the schedule of rates as agreed upon several months ago. This will raise the business telephone rate one dollar a month.

April 21: Conference held at Hastings in regard to the application of the Lincoln Telephone & Telegraph Co. to raise the rates for business telephone service in that city from $3.50 to $4.50, with free service in all towns in the country except Ayr, Glenville and Inland.

April: Petition by the Harvard Telephone Co. for permission to discontinue all switching service and privileges now given the Clay County Rural Telephone Co.

NEW YORK.

April 23: Hearing on the complaint of Wyman S. Bascom for himself and the firm of Newton & Hill, of Fort Edward, vs. the New York Telephone Co.

PENNSYLVANIA.

April 9: Further hearing held in the telephone rate investigation. The Bell Telephone Co. of Pennsylvania and the Central Distric Telephone Co. continued the presentation of their case.

WISCONSIN.

April: Attorneys representing the Rock County Telephone Co. and the Wisconsin Telephone Co. presented arguments before Ralph M. Hoyt, assistant secretary of the Wisconsin Railroad Commission, regarding the right of the Bell company to extend its line into the town of Rock. The Rock County company appealed to the commission to prevent this invasion, owning, as it does, a line into this territory, and maintaining that the Bell extension would be an infringement under the anti-duplication law. A decision is expected within a week.

April 17: Denial of application of the Matoon Telephone Co. to extend its lines into the town of Norwood, Langlade County, because its lines would parallel or duplicate those of the Antigo Telephone Co., of Antigo, which operates in the town of Norwood and has a number of lines there.

Queries on Theory and Practice

Impedance of Condensers.

Will you please give me the equal in resistance of various sized condensers to the regular 16⅔ cycle ringing current? We use a ½ mf. condenser in the receiver circuit of bridging telephones to shunt or force the ringing current to the ringer,

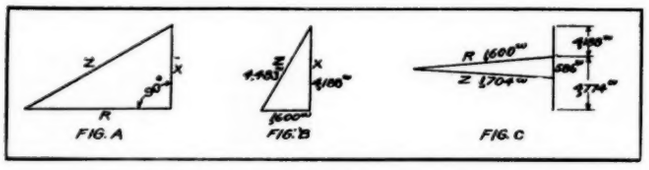


Fig. 1. Resistance, Reactance, and Impedance.

but how much resistance or impedance do we really put in the circuit? Please give this impedance or relative resistance for ¼, ½, 1, 2, 4, and 2.2 mf. condensers.

The effects of a condenser in an alternating current circuit can not be expressed as simple resistance. The principal effect of a condenser is reactance and is found by use of the expression $X = \frac{1}{2\pi f C}$ in which $\pi = 3.1416$, f = frequency in cycles per second, and C = capacity of the condenser in farads (one farad = 1,000,000 mf.). The reactances (X) of various condensers to 16⅔ cycle current are as follows:

Capacity	Reactance.
¼ mf. condensers	38,190 ohms
½ mf. condensers	19,095 ohms
1 mf. condensers	9,547 ohms
2 mf. condensers	4,774 ohms
2.2 mf. condensers	4,340 ohms
4 mf. condenser	2,387 ohms

The joint effect or impedance of a condenser in series with a non-inductive resistance is given by the expression $Z = \sqrt{R^2 + X^2}$ in which R is the resistance of the non-inductive unit in ohms; X the reactance (in ohms) of the condenser, calculated as above; and Z the impedance, also in ohms.

The relationship is graphically shown in Fig. 1-*A*. The hypothenuse of a right triangle equals the square root of the sum of the square of the other two sides. For instance, a 2

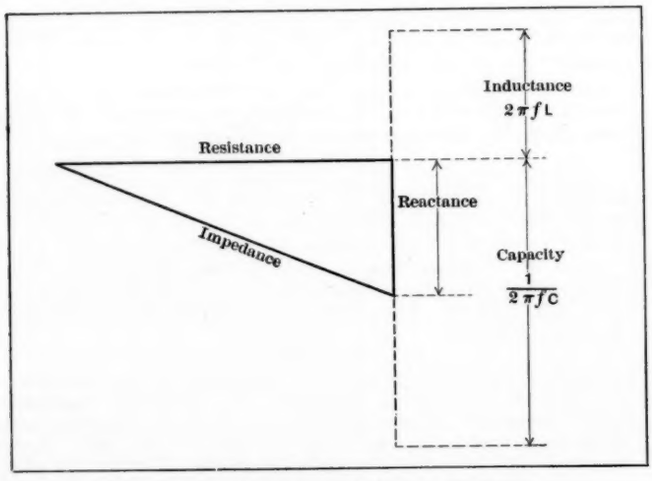


Fig. 2. Graphic Representation of Relations.

mf. condenser in series with 5,000 ohms non-inductive resistance (current at 16⅔ cycles) would have an impedance of 6,913 ohms.

$R = 5{,}000$ $\quad R^2 = 25{,}000{,}000$

$X = 4{,}774$ $\quad X^2 = 22{,}790{,}000$

$R^2 + X^2 = 47{,}790{,}000$ $\quad Z = \sqrt{47{,}790{,}000} = 6{,}913$ ohms.

The joint impedance of a condenser in series with a coil possessing inductance is given by the expression $Z = \sqrt{R^2 + (X_1 - X_2)^2}$ in which R = total effective resistance; X the reactance of the coil; and X_2 the reactance of the condenser. The reactance of the coil equals $X_1 = 2\pi f L$ in which L is the inductance of the coil. It will be noticed that the reactance of the coil and the reactance of the condenser tend to offset or neutralize one another.

In the case of a 2 mf. condenser in series with a 1,600-ohm bell the inductance of which is 40 henries, the impedance (neglecting core losses) will be only 1,704 ohms, while the impedance of the bell without the condenser is 4,483 ohms.

The reactance of a 40-henry bell $= 2 \times 3.1416 \times 40 = 4{,}188$. Impedence (Fig. 1-*B*) = 4,483 ohms.

The reactance of 2 mf. condenser to 16⅔ cycle current = 4,774 ohms. The total reactance (Fig. 1-*C*) is the difference between the condenser reactance and the coil reactance or 4,774 — 4,188 = 586 ohms. Hence the impedance is 1,704 ohms.

The condenser will add a little resistance in the shape of di-electric hysteresis, but it will be not over 15 or 20 ohms.

Underground Common Return Will Work.

At the end of our cable leads, our lines have been extended, in some cases two and three blocks. Trees have grown up among the wires so as to make considerable trouble. Can a common return be used in such cases for from six to ten telephones, and would it have any advantage over the old ground circuit? Would it be necessary to ground the common return? If it can be worked underground I would like to do it that way, as we are bothered by inductions from street lights.

A small system can be worked successfully with an underground or insulated common return. However, if you connect (through the switchboard) one of these lines to a grounded line, it will ground the return wire and all the advantage gained by insulation will be lost. You can stop that by using a repeating coil on each of those lines which are on the insulated common returns. The cost of repeating coils must be balanced against the cost of making the lines metallic, keeping in mind the fact that even if these ten lines are metallic, they will be noisy whenever connected to a grounded line, unless a repeating coil is used.

Install a New Switchboard.

Will you kindly give me your opinion as to what I should do with my exchange? My board was made by a company which has gone out of business and it is impossible to get repairs. It has been in use for 12 years and, gives us more or less trouble. It was wired for 100 drops with 60 installed. I now have nearly 80 telephones, and, therefore, have two telephones on many of the drops. The plant was built common return about 1,200 ft. of lead cable. Cross talk bothers some but not enough to cause complaints.

Which is the most advisable thing for me to do, buy a board with enough drops to take care of subscribers individually, or put in a board with selective ringing, and having the same number of drops as I now have. In either event, it means more stringing of wires, but I have an idea that the selective would mean the less of the two. Will selective ringing work on common return or must it be all metallic?

Would you advise burying cable in our black soil where digging would be easily kept track of and damage guarded against?

Buy a modern 100-line board of some live Independent manufacturer, so that as your plant grows, you can add other 100 line units. If your rates permit it, give the people individual line service. Party lines are only to be used if cheap service must be given. You can give harmonic party line

service (two, three or four stations per line) with common return. You can give two-party service by using biased bells and pulsating current, but you will have trouble with false rings every time a subscriber on such a line rings central. Weakening the hand generator by removing one or more magnet bars will help, but will make ringing off less certain.

If you install metallic circuits, you can bridge the bells from line to ground and let the subscriber ring central metallic with weakened generators.

In any case, balance up the cost of additional wire against the cost of selective ringing equipment.

Burying cable in the earth is not sufficiently well settled to warrant us in unreservedly advising it. A number of people do it with success and we think perhaps you will have no trouble. But avoid covering it with boards. Wood in contact with soil and lead sheath may act chemically on the sheath and ruin it. Use a little layer of concrete just above the cable, so that, if a workman is digging he will have a warning before he strikes the cable. This applies equally well to your own men and to others.

A Lead Boring Beetle.

Prof. B. W. Kunkel of the department of biology, Beloit college, is now making an investigation into the characteristics of a "lead-eating" beetle sent to him by the Chicago Telephone Co.

The specimen was found recently in a telephone fuse in the Chicago stock yards district by an engineer of the Chicago Telephone Co. The fuse had been cut but the lineman who found it was unable to determine the cause so he turned it over to an engineer for examination. In the fuse were found this beetle and two larvae forms. Close inspection showed that the fuse wire had been bored through, bit by bit. The little bug was watched for several days in a glass jar where he had been caged with the fuse and it was observed that he attacked only the metals parts and none of the fibre covering of the fuse.

Particular value is attached to this find because it is one of the very few instances in which the beetle has been caught almost in the act. It has at previous times forced the telephone company to give it some attention because of the damage it has done to fuses and even to telephone cable. It is said to be a miniature form of the beetle Dermestes Vulpinus belonging to the family Dermestidae.

Prof. Kunkel has been asked to make a microscopic examination of its mandibles or jaws in order that the manner in which it attacks lead may be determined. There are indications which lead to the belief that the beetle bores round and round in a sort of spiral. Recently a number of larvae were found within a small hole that had been bored into a telephone pole. To make this little nest, however, the parent bug had bored a hole, which resembled a large nail hole, through a small plate of lead in the pole. The surface around this opening was closely examined and found to be irregular as if bored out by some sharp instrument in spiral motion.

In size, the beetle is only about half as large as the ordinary beetle. It could crawl through a large nail hole with ease. Because of its size it is able to attack one certain type of fuse three inches long and half an inch in diameter. There is a fibre casing on this fuse in which there is a hole about three-sixteenths of an inch in diameter to allow for extension of the fuse strip. There insects can enter through this hole, cut up the asbestos packing around the fuse and finally cut the fuse itself. Such is the nature of the damage these bugs have already done.

It is stated that there is no longer any doubt as to what it is that has been doing the secret mischief, but the manner in which the beetle works has never been known. The fact that it seems to have a fondness for attacking metal makes it unfamiliar to scientists and the result of Prof. Kunkel's examination will be awaited with much interest.

Engineering College Graduates Follow Engineering.

The statement that graduates of engineering schools do not follow the engineering profession is shown to be erroneous in the case at least of the college of engineering of the University of Illinois. Data recently collected by the college show that of the 2,165 graduates, 1,933 or 89 per cent. are engaged in one way or another in engineering work, and that only 173 or about 8 per cent. have gone into other fields. The occupations of the graduates of the college of engineering are tabulated as follows:

A.—Non-engineering	No.	Percentage
1. Farmers and ranchmen	52	2.39
2. Merchants	31	1.42
3. Executive officers of mercantile companies	19	.88
4. Editors	19	.88
5. Real estate and insurance	15	.68
6. Salesmen	10	.46
7. Army officers	8	.36
8. Bankers	6	.28
9. Physicians	5	.24
10. Lawyers	5	.24
11. Miscellaneous	3	.13
Total	173	7.96
B.—Engineering		
1. Employes of engineering companies	1370	63.2
2. Architects	318	14.6
3. Executive officers of engineering companies	130	6.
4. Teachers	95	4.6
5. Consulting engineers	20	.92
Total	1933	89.32
Deceased	59	2.72
Grand total	2165	100.00

The above statement is a part of the alumni register, soon to be issued by the college of engineering of the University of Illinois. The book will contain the present addresses and occupations of all graduates of the college.

Competition Eliminated—Rates Go Up.

The elimination of telephone competition has sometimes been justified on the ground that to have two competing companies in a city involves an economic waste which ought to be done away with, especially in a state having a commission to guard the interests of the public. In view of the fact that New York state has a commission which has spent considerable time in the telephone rate investigations, the following editorial from the Syracuse Herald will be of interest:

The absorption by the New York Telephone Co. of its Independent rival, which was known by different names in different parts of the state, has been followed gradually by a readjustment of rate schedules—readjustment being the pet corporate euphemism for increase.

The public has been assured over and over again that consolidation of competing interests in public service and other corporate lines must necessarily mean greater economy of operation and therefore substantial benefit to consumers. If this be true, the telephone service is apparently an exception to the rule; for there has been an upward tendency in telephone rates everywhere in this state since the merger of the two telephone companies was effected. It is true that there was an economic waste in the maintenance of two telephone organi-

zations. It is true that a certain proportion of telephone users were subjected to unnecessary expense and inconvenience owing to the duplication of the service while competition existed. But it is also true that the old, or Bell company, prospered in the face of the competition; and yet, with the disappearance of the competition, and in spite of the contention that consolidation would mean economy of operation, the remaining monopoly has been augmenting its rates.

In the Skaneateles Free Press, for example, appears an advertisement setting forth a new schedule of rates. According to a statement in the news columns of that lively weekly, the new schedule represents an increase of $3 a year in the four-party-line rates and of $6 per year in the individual and business rates, rural and semi-rural. In the advertisement there is no reference to this increase; but on the other hand, the fact is emphasized that some subscribers will save money because they no longer have to patronize two telephone companies. The truth is that for the one subscriber who is benefited by the disappearance of the duplicated system, probably 50 will be called upon to pay more for the consolidated service.

The plea put forth in defense of this advance of rates is that the telephone service has been greatly improved. If we concede that this claim is well founded, we must remember, at the same time, that many other kinds of progressive business are undergoing steady improvement and modernization without increasing their charges for service or for commodities.

It is desirable for the public to know whether the New York Telephone Co., now relieved from competition, is justified in advancing rates in the smaller cities and in the villages and rural districts of the state. If it is so justified, the wonder is that it was able to make money at lower rates under the old competitive system.

Advertising to Help Collection of Bills.

The United Telephone Co., of Huntington, Ind., has found advertising a material aid in collecting monthly bills. Several times during the bill-paying time between the 1st and 10th of each month, the company runs an advertisement, well displayed, in a space two columns wide by about six inches deep, as follows:

TELEPHONE BILLS

are due and payable on the first day of the month.

All accounts unpaid after the 10th of the month in which they fall due will be considered in arrears.

Service will be subject to disconnection on the lines of all subscribers who are delinquent after the 15th.

If your account has not been paid please call at our office or mail us your check today.

If you wish any information about your telephone bill, call telephone No. 13.

Office open Monday and Saturday evenings and pay day evening, and the next evening from 7 to 8.

THE UNITED TELEPHONE COMPANY.

A. L. Greeman, manager, says the advertising has the added good advantage of leaving the excuse maker who says "I didn't know your practice" without a leg to stand on after he has been shown a copy of the paper carrying the advertisement with the comment, "We are doing all we can to keep people informed of our practice."

Prof. Bemis on State Commissions.

State public utility commissions have not been the brilliant success predicted by some of their supporters, according to Professor Edward W. Bemis, of Chicago, member of the advisory committee of the Interstate Commerce Commission for valuation of railroads, telephone and telegraph properties, in a recent talk before the Saturday Lunch Club at Minneapolis, Minn.

"The more one gets behind the scenes," said Professor Bemis, "one is inclined to note the frailty of commissions, and to feel that they are not the magic way to get regulation one would imagine possible from reading some books.

"I find that many state commissions feel they are overworked. They say they have not appropriations enough to do their work. In some instances politics interfered with the commissions and with some there is corporation interference."

Professor Bemis suggested as a further field for regulation such interurban utilities as telephone, electric transmission and trolley lines, regulation for uniformity and publicity of accounts by all other public service companies, whether publicly or privately owned, inspection of service of such corporations, and offer of legal and expert aid to local communities when desired.

Regulation of securities of public utility corporations is dangerous in the opinion of Professor Bemis. The most effective regulation of private monopolies he held to be the retention of the right by a city to engage in the business at any time by purchase or building lines. He said that state regulation tends to weaken civic pride in control of local institutions. State control, he said, also lessens the education of the courts as to the attitude of the people on subjects that are appealed.

Hearings of Commission on Industrial Relations.

How may relations existing between employer and employe in the nation's industries be made more harmonious without sacrificing the rights or thwarting the legitimate ambitions of either? The United States Commission on Industrial Relations is in the field to find an answer. And any person who has a constructive suggestion will be given an opportunity to offer it at the public hearings now being planned.

Among the cities that probably will be visited by the commission are: New York, Philadelphia, Boston, Paterson, Scranton, Pittsburgh, Buffalo, Wheeling, Charlotte, Greenville, Atlanta, Birmingham, Nashville, Memphis, Louisville, New Orleans, Detroit, Indianapolis, Cleveland, Chicago, Houghton, Milwaukee, Madison, St. Louis, Kansas City, St. Paul, Denver, Trinidad, Dallas or Houston, Los Angeles, San Francisco, Seattle, Butte and Lead.

Men or women who can tell of a successful effort to maintain harmonious and satisfactory relations through trade agreements or otherwise, are invited by the commission to communicate with it at Washington and to send in the names of witnesses who are competent to testify regarding such efforts.

Other fields of inquiry will be entered, however. These include the problems of unskilled labor, such as unemployment; irregularity; revolutionary labor organizations; the relation of the courts to labor disputes; vocational education; and the activities of public agencies in enacting and enforcing laws for the regulation of industrial relations.

One important subject to be considered is scientific management and the problem of how to apply it on a basis that is fair both to employers and employes.

The first hearing, on Collective Bargaining, Conciliation and Arbitration, was held in Washington, beginning April 6. This was followed by another hearing in Washington, beginning April 13, on efficiency systems and labor. Shortly after the Washington hearings, the commission will hold a public hearing, probably in Chicago, on profit sharing and bonuses. Matters to be made the subjects of special hearings will also be inquired into at the more general hearings in other cities.

Postal and Telephone Rates in Roumania.

New postal, telegraph and telephone regulations became effective in Roumania the first of the current year, says United States Minister Charles J. Vopicka, at Bucharest. The law establishes a yearly rate of 100 francs ($19.30) for 2,000 telephone calls and for every call above that number 10 centimes (about 2 cents) a call. Subscribers having more than 8,000 calls are required to have two trunk lines.

Sparks from the Troubleman's Department

Ringing Up the Doctor.

By William Brady.

Three a. m. Raining cats and canines. The Ides of March.

B-r-r-r-r-rh! Brrh! B-r-r-r-r-r-r-r-rh! Brh! Br-r-rh! Br-rr———.

"Yes!" snaps a hoarse voice. "This is Dr. Foster!"

Buz-z-z-z-z! Zn-n-n-n -Zn-n-n-n -Zn-n-n-n——.

"Hello, who's this?" demands the unknown, nevertheless. It is the conventional thing to say on the telephone.

"Dr. Foster."

"This the doctor himself?"

"Yes, I think so," murmurs the hoarse voice doubtfully. There is strong temptation to use an alias or be out of town.

"Say, doctor, you're wanted up here right away," declares the unknown accusingly. "There's a man sick here and they're afraid he's goin' to die!"

"Where is it, please?"

"In his head—a stroke, I guess. Will you come right up?"

The doctor holds one bare foot on the opposite calf and tries another tack. "Who wants me?" he inquires.

Zn-n-n-n-nn---"What?" yells the unknown—zn-n-n--

"I say, where am I to call?" pursues the doctor.

Mum-m-m-m, mum-m-m-m-m, Br-r-r-rh! Confused mumbling at the other end. Doctor's teeth begin to chatter. New voice—high soprano—speaks up with an authoritative air. "Hello. Who's this?"

"Dr. Foster," sighs the shivering man.

"Is this the doctor?"

Any one else would say "No, this is Christopher Columbus!"—but the doctor meekly replies "Yes, madam."

"Well, come right up just as soon as possible. I'm afraid this old gentleman won't last much longer!"

"Who is it, please?" The doctor's feet are like ice, but his tone is still sympathetic and friendly.

"It's a relative from out of town. He was taken ill at supper time and we've been trying to get a doctor ever since."

"But you haven't given me the name and address," the doctor insists.

"Oh, it's da-de-da de-da-do, right up here opposite the hum-te-tum house where you were last month, you know, just beyond the la-de-do park entrance—" zn-n-n-n—the good woman rambles on, shouting her directions into the telephone to overcome the roar of the wires, and enumerating landmarks of unidentified nature, until the doctor suddenly slams the receiver back on the hook with a growl and crawls back to bed. Whereupon the frantic woman calls up the next victim (that is why the company prints the doctors' names in a bunch), and puts him through a similar test.

One of the most convenient uses of the telephone is that which is commonly exercised by non-subscribers who have access to a neighbor's or storekeeper's instrument. A small, pestiferous youngster armed with a string and tin can manages somehow to be attacked by a playful, pugnacious terrier on a hot August afternoon. Any other time of year would not do as well, because hydrophobia, in the popular fancy, is limited to the "dog-days!" Well, the bystanders ring up one doctor after another, beginning at the top of the list, and each medico who answers is urged to come with all possible speed—the child is dying!

In this manner quite a battalion of medical gentlemen may be summoned on the scene, and little Johnny having long since forgotten his wound and gone swimming, the exasperated medical persons can only vent their feelings on the August atmosphere, since nobody knows who the dickens called 'em or why they were called.

All private telephone lists should have a good doctor's name at the top. When one has a pain in the solar plexus time is precious. Literature is for idler moments. In fact, it is a good plan to have the doctor's number engraved on the mouth-piece of the instrument if not on the memory.

A doctor's wife should be always prepared to lie like a lady over the telephone. From 8 o'clock p. m. till 8 a. m. it is her duty to answer all telephone calls in the interest of science—which is chiefly physiological rest. What good is a doctor who gets no sleep, anyway? From dark to daylight he should be "out of town," "attending a case," or "incapacitated by a heavy cold," just as the society woman is "not at home" before 3 in the afternoon.

Yet it is remarkable how fresh and healthy looking a busy practitioner seems on a morning after a night of hard labor. Haven't you noticed his bright eye and elastic step as he enters your weary chamber along toward 10 in the forenoon, when you are hovering between life and death at the end of a torturous siege of indigestion? An ordinary person would look all drawn out after a night of hard work

"A Little Celluloid Sign Will Project Above the Doctor's Instrument."

without a wink of sleep or a gulp of breakfast, but the doctor invariably arrives as fresh as a posy. One would naturally suppose a physician's disorderly life and irregular meals would ruin his digestion in time, but as a matter of actual fact, who ever saw a dyspeptic doctor?

Some people maintain that the Police Department and the Fire Department numbers should have precedence over the Department of the Interior on the telephone list, but this is doubtful. Patent fire extinguishers have been wonderfuly improved of late years, and automatic, sure-shot, fool-proof pistols are getting safe enough for careful people to handle, but there has been no noticeable reform in the Interior Department for many years. It is now over a quarter of a century since an overworked Boston physician invented appendicitis, yet 3 a. m. stomach-ache is practically as common as ever. For most housewives still use pretty tough flour.

In the halcyon times frightened fathers had to hot-foot it to the doctor's office when little Willie came down with croup. There was some satisfaction in answering night calls then. For one thing, the doctor had company on the way,

or rather a pace-maker leading the way by several lengths. And for another, the trouble had time to manifest some symptoms worth while before the doctor got there.

Nowadays, about the severest diagnosis the doctor can venture is that Willie is "threatened" with croup or something. And a threat is good for only a visit or two as a rule. The telephone certainly ruins a doctor's practice.

In China doctors are paid for keeping their clients well. It is a good plan. We are gradually adopting it here. American parents are becoming so Chinese, in fact, that there are now about 10 threats to one old fashioned run of sickness in the average doctor's practice. Thanks to one Alexander Graham Bell it is really quite an event for the doctor to attend a long siege of fever, as he was accustomed to do in days of yore. Certain philosophers go so far as to intimate that the telephone is driving the doctor out of business altogether. But as long as everybody keeps passing around the common "cold," we needn't worry about the doctor's welfare.

Surgeons have no quarrel whatever with the telephone. Any man who pretends to be an operating surgeon—and there are slathers of pretenders—maintains at least half a dozen telephones around the place, including a night wire right beside the bed. There is reason in his insanity. If the patient can be reached while the stomach-ache is still rearing and tearing at his insides like he had swallowed a box of pepper, it doesn't require a lot of eloquence to persuade him he should be immediately speared. And while his mind is focused so intently on his "stummick," it is a comparatively simple matter for the surgeon to rush him off to the hospital and extract his appendix before anybody has time to realize what's going on.

Now in the old days Grandma, bless her dear heart, would have applied a flaxseed poultice and fixed up a cup o' ginger tea and—well, is it any wonder the surgeons condemn poultices and subscribe to batteries of telephones?

A family doctor's life is just one ring after another nowadays. If you ever wonder what makes the doctor so peevish at times, go and spend a day and a night in his home and listen to the merry ringing of the bells. A sharp alarm at 3 a. m. may suggest fire or burglars to nervous souls, profanity to a liveryman, and so on, but to the doctor it suggests one thing only. You'd never guess, so I may as well tell you. It's just onions. Onions plain, raw, boiled, fricaseed, with hot dogs, sauerkraut or any other little delicacies in season. In some towns, of course, such an alarm suggests wrong number, but we need not discuss that here. Be it merely observed that, although the telephone rings repeatedly and viciously until you get up and answer it—choke it off perhaps in the middle of a long ring—yet you must have been dreaming, for central doesn't want you. No, she didn't call you, no matter what you think about it.

There is one thing the doctor learns from the telephone, and that is patience. Suppose he wishes to converse with a consultant in another city. He calls toll, toll takes his number and tells him she'll call him. The doctor sits down and waits 10, 20, 30 minutes, and it's nearly dinner time. Presently he takes down the receiver again and calls toll. When he gets her he politely inquires what about it. She doesn't know him—never heard of him before. But she takes his number and says wearily: "I'll call you."

Right here is where patience comes in. The doctor has simply got to get that party, so he takes another turn around the room, choking back that berserker feeling that rises in his breast. When he can stand it no longer he calls toll once again. She asks him who it is he wants to talk to, and sweetly inquires "What's your number, please?"

Personally I'm sure the telephone has added greatly to my own stock of patience, however it may have robbed me of "patients." Thirty-odd years ago I would kick up a great row whenever my slightest needs were not promptly met; whereas today I often wait a year or more for the fulfillment of my supreme wants—and even then I sometimes get stung.

When the profession shall have become sufficiently well organized to merit the title of "The Doctors' Trust" which our friends, the nostrum makers, have given it, we're going to have slot attachments on all public telephones. These slots will require silver dollars to work them. Then the night owl will deposit his nickel, deliver his message of want, and ask the doctor whether he will respond.

A moment of suggestive silence will follow. The party will thereupon deposit his dollar, and a little celluloid sign will project above the doctor's instrument with this legend on it: "Good risk." The doctor will then respond with great pleasure. No one will ever have any difficulty about getting a doctor at night when the dollar compartment is added to the pay station.

Of course the company will insist on splitting the fee—and everyone knows by this time how averse we of the profession are to such unethical practices. But, even at that, the subsidized night call will be a vast improvement over the present free-for-all arrangement under which the luckless doctor is at the mercy of Tom, Dick and Harry.

Jimmy, aged 5, was told the story of Daniel in the lions' den by his grandmother. When she had finished the story, she said, "Now, what do you think Daniel did the very first thing when he found he was saved from the lions?"

"Oh I guess he telephoned home to his wife to tell her he was all right," answered Jimmy.

Assistant—Here's a man who says he never knew his 'phone to ring through mistake, never had the operator to tell him, "Line busy;" never was disconnected, nor ever had a friend to tell him, "I called and your line was busy;" what shall I do with it?

Editor—Why, put it in "Current Fiction," of course.

NOW I'M HAVING THIS TELEPHONE INSTALLED SO THAT I CAN HEAR THE MUSIC AT MY NEIGHBOR'S HOUSE
I CANT HEAR A THING.
THERE'S SOMETHING WRONG WITH MY PHONE IT DON'T WORK AT ALL.
COMPLAINT DEPT
WELL HE SAID HE WANTED TO HEAR MUSIC SO WE WIRED HIS PHONE WITH PIANO WIRE.
Ale-Ting.

Once More Felix and Fink Improve on Their Instructions.

Practical Subjects—Letters and Discussions

A Signal Protection Against Cable Cutting Robbers.

W. M. Byrnes, of Vail, Iowa, sends to TELEPHONY a clipping from the local paper which describes the unsuccessful attempt of six safe blowers to rob the local bank. The robbers, by a ruse, overpowered the night watchman, bound and gagged him and carried him to the council room, where one of their number was left to guard him, while the other five attempted the robbery. Their first action was to cut the telephone cable and all wires leading to the Vail Telephone Co.'s central office. Fortunately they overlooked the toll wire for the reason that it did not come through the cables, but was strung along the side of the office, and was the only one that was not on the terminal pole. The operator heard them at work on the wire and, on finding that the switchboard was out of commission, promptly telephoned on the toll wire to Sheriff Cummings at Denison, who came at once with a number of deputies by auto. The robbers fled without having effected an entrance to the bank vaults.

The telephone company sustained the principal loss, as 488 wires had been cut through with a hack saw, entailing a great deal of work on the part of the lineman and cable splicer. Most of the work was done on very cold days, with a strong wind blowing that made testing difficult.

The night operator profited to the extent of a check for $50 from the owners of the bank. Our correspondent thinks she is well entitled to this sum, for she ran the risk of being shot through the window and was compelled, for self protection, to blow out the light and then grope about the board with her fingers until she found, by inserting her plugs in the board, the one wire that could be used.

While repairing the wires a means of future protection occurred to Mr. Byrnes, who writes:

"The thought came to me on repairing the wires to leave a pair of wires in each cable attached to about four dry cells, and wired to a drop in such a manner that a saw going through them would short circuit and throw a signal, by which the operator would know that something was wrong with the cable, and could give an alarm over a wire secreted for that purpose and not contained in the cables. This is the third time in five years that there have been safe blowers in this town and I think that every town that has a telephone exchange should arrange an alarm that would operate in an emergency of this kind."

Rules for a Rural Telephone.

I am enclosing copy of rules of one of our rural telephone systems, which I thought might be of interest. This is a grounded system with about 80 telephones that simply take care of themselves, and still some service is obtained from them.

W. A. Sharp, Heddewith, N. C., R. F. D., is secretary and treasurer of the system, but each line has its president and secretary. About 10 lines are used.

RULE 1. Every stockholder shall pay to the Director of his line on the first day of each year, his pro rata of the expenses of the company, and if any stockholder fails for thirty days to pay his dues, the President shall, on being so informed by the Treasurer, direct that his telephone be cut out by one of the directors until such arrears are paid.

RULE 2. Any stockholder making a call when a line is not in use shall have right of way until his conversation is concluded, said conversation not to exceed five minutes. *Provided,* the President and Secretary and Treasurer shall not be limited as to time when transacting business for the company.

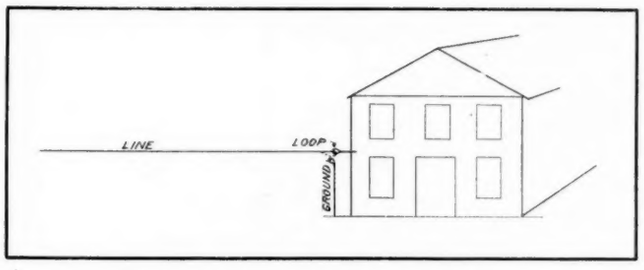
RULE 3. All social talk and gossip must give way for business, and not be resumed until the line is again idle. The signal to cease such talk is the ring for party wanted.

RULE 4. Music must be kept off all lines, except by consent of all parties on the line, and must cease at once when wanted for conversation.

RULE 5. In making calls to the switchboard, the operator will give the desired connection at once, if not in use, if in use the party making the call must wait until he can get the line wanted.

RULE 6. All stockholders get free connection at the central office in Statesville, when it is free to the Statesville company.

RULE 7. All persons not members of our company wishing



Disconnect Arrangement on Rural Line.

to make telephone calls, will pay a fare of five cents for each message of not more than five minutes on all our lines, and ten cents when another line is used.

RULE 8. Every stockholder shall keep a record of all tolls at his telephone and turn same over to the director of his line at the end of each year, with his dues, and if he fails to collect such toll he shall pay it himself.

RULE 9. No profane, vulgar, or insulting language shall be used by any one over any line.

RULE 10. Any person hearing any conversation and repeating it—the same not being general news—shall be guilty of unbecoming conduct.

RULE 11. Every stockholder shall keep his telephone in repair, at his own expense, but if the impaired condition of any telephone injuriously affects the transmission of messages, then the company may make such repairs as may be necessary.

RULE 12. An employe of a stockholder may use any telephone on our lines in the interest of his employer, but if in his own interest, then he must pay tolls, and all persons must pay the tolls on all other lines, when so required.

RULE 13. No person shall ground any line so as to interfere with the transmission of messages, except in case of electrical storms. As soon as storm is over lines shall be connected.

RULE 14. No person shall whistle, blow or otherwise make disturbing sounds in any telephone.

RULE 15. No person shall answer for another, nor impersonate another, so as to lead anyone to suppose him or her to be the person called, nor shall any one answer for or impersonate the operator at the switchboard.

RULE 16. No person shall transact any secular business on the Sabbath day, or play into the telephone any music that is not sacred.

RULE 17. Every person answering a telephone call shall give his own real name, and not "me" or some other indefinite way, so as to give annoyance.

RULE 18. Any stockholder violating any of these rules, shall be subject to suspension of the use of his telephone for one week, and if said rules are repeatedly and willfully violated by any stockholder or members of his family, or any one in his employ, or any one else his telephone shall be cut out.

RULE 19. There shall be no useless ringing on any of the lines after nine o'clock at night; ringing any one after the operator turns on the night bell and goes to bed. They should not have to get up and turn off the night bell for any useless and foolish ringing and any stockholder allowing any one to do so on his telephone or does so himself shall have his telephone cut out.

RULE 20. When two lines running close together, no stockholder shall tie or connect any such lines together.

RULE 21. These rules are adopted by a majority of directors, in open meeting after full discussion and are binding upon all.

I will make a rough sketch to explain rule 13. You will note there are no arresters and the line is simply hooked together and when it looks like rain, the subscriber unhooks and hooks to ground until the storm is over.

North Carolina. Subscriber.

Enterprising Advertising of a Missouri Telephone Company.

H. C. Todd, vice-president and general manager of the Hanamo Telephone Co., of Marysville, Mo., has favored TELEPHONY with a special advertising edition of a local newspaper showing the novel and enterprising means adopted by his company to bring a reproduction of the Independent shield in colors, red and blue, to the attention of every subscriber of the paper. The local newspaper was, of course, without facilities to publish a reproduction of the shield in colors. The company, however, had two color reproductions of the shield printed on stickers 1⅞ ins. square, of a good quality of paper. As to the method then pursued, Mr. Todd writes:

This "Shield" is the Emblem of Your
"Home Telephone Company"
Who Furnish You the Most and Best Telephone Service For the Price.
INDEPENDENT
LOCAL AND LONG DISTANCE
TELEPHONE
HANAMO TELEPHONE COMPANY

Shield Pasted in Ad.

"We call your attention to an advertisement we carried in our local paper, on page three, section one, which demonstrates what can be accomplished in a small town in the way of two or three color newspaper ads, even though the print shop is not prepared to do two-color work on its newspaper press.

"This was accomplished by a person standing at the side of the press receiving table, the shield stickers being placed over the square outline printed in the ad just as the papers came off the roller to the table, which, of course, requires pretty rapid work and becomes somewhat tiresome and monotonous on a two thousand run, but still—it can be accomplished."

The accompanying illustration is a reproduction of the advertisement of the Hanamo Telephone Co., including the shield sticker, which, though black in this paper, appears in the original an attractive two-color reproduction of the well known Independent shield.

Poor Connections on Farmer Lines.

I read with interest Mr. Marsh's letter in TELEPHONY of March 14, in regard to rusty joints cut from farmers' grounded lines, as we have on one of our exchanges about 50 grounded circuits, giving service to over 500 subscribers.

We have a metallic circuit of No. 14 B. B. galvanized iron wire, 14 miles in length which leaves our pole lead two miles from town. This line was owned and kept up by the subscribers, most of it having been built some eight or ten years ago, but the organization disbanded after a few years' service. About four years ago the line was rebuilt and new instruments installed. The subscribers obtained very good service until about 10 months ago, when they began to complain that they could not get central from the end of the line. We could not convince them that the trouble was on their part so the association again disbanded.

In February of this year, the subscribers got together and decided to have two grounded circuits with seven stations on each line. After going over the line, replacing some of the poles and cutting out rights of way, they were ready to have the stations changed from metallic to grounded. I was sent out on the job to transfer the lines to the new poles and change stations, and to do nothing more, but after going over the line, taking off each instrument as I went along, I cut in the station on the end of the line and could not ring in.

Before all the subscribers could get service, I spent four days on those two lines, cutting out bad joints. These same subscribers were certain that the trouble was at the central office. One or more of them were with me all the time, watching and learning, and as I would test along on the line and get better results every time I tested, they became satisfied that the trouble was on their part of the line. Now that these subscribers have been convinced that the trouble was on their part and not on the company's, they are better satisfied and are getting to work to fix up the line, setting better poles and pulling up slack wires.

All circuits, grounded or metallic, work much better where there are good joints and pulled up to as much strain as they will stand. I have often gone out on lines, kept up by subscribers, to clear trouble and I have cut out such things as hay wire, barbed wire, rusty hoops, buggy tires, wire springs, trace chains and numerous other things, anything that was iron. Almost any subscriber used to do this, but we have given them all advice and they are learning to know better.

I agree with Mr. Marsh on using sleeves where the company operating the exchange does the work, but where the subscribers do their own work, they could not use the sleeves successfully.

C. M. Hamrick, Inspector,
Gainsboro Telephone & Telegraph Co.
Carrollton, Ga.

How to Hear Well on a Poor Line.

A good many years ago, the writer was in charge of a line, or at least was responsible in the matter of keeping after the linemen until the line was operating properly—a kind of an indirect responsibility which, however, was none the less real. The line was what might be termed a joke. It was run and kept in operation by a large street railway. The repairs were made by an office boy who knew "something" about telephones, when the repairs were within the building, and by the regular trolley linemen when on the poles. The "something"which the office boy knew about telephones, seemed mainly, to make them worse, and that line was "out" nearly all the time.

The wire in the line, mostly of copper, varied in size from No. 2 to No. 14, depending on what the linemen had at the time of installation. To help matters further, there were various switches at points on the line, which had to be thrown by the starter stationed at that point, and this operation depended greatly on how he felt at the time of the ringing. It was a magneto system and the bells were arranged to call by combination of rings. Everything conducive about the system to efficiency, was eliminated, and the Bell telephone company reaped a small fortune thereby.

There used to be calls coming from the end of the line, mainly, I believe, to give the local superintendent an excuse for using the Bell telephone, for they were so faint that they could be barely heard. It was while experimenting with various receivers, trying to find one which had not been fixed by that office boy, that I discovered that the use of two receivers instead of one, greatly increased the ability to hear. Of course this means one receiver was put over each ear. It even made the voice appear as if the person were in the same room talking naturally, when the line was working well. The receivers were connected to the same binding posts, in parallel.

Washington, D. C. A. P. Connor.

New Bell Exchange at Sault Ste. Marie, Mich.

The Michigan State Telephone Co. recently cut over to a new $70,000 exchange at Sault Ste. Marie, Mich.

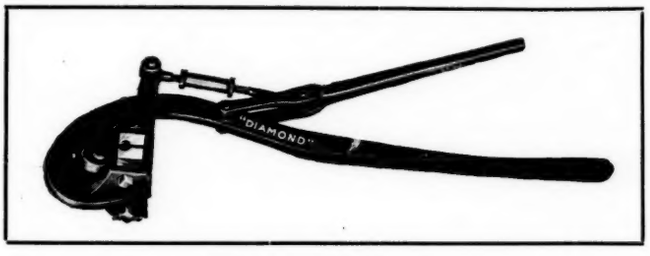
From Factory and Salesroom

Conventions: Missouri, Kansas City, May 6, 7; Tri-State, Jackson, Tenn., May 19, 20; Railway Telegraph Superintendents, New Orleans, May 19, 20, 21 and 22

The Diamond Crimper.

A new crimper for attaching aerial rings to messenger strands for supporting lead cable on poles has been placed on the market by the Diamond Expansion Bolt Co., 90 West St., New York.

This crimper is claimed to be the most powerful tool



The Diamond Crimper.

of the type that has ever been introduced. A compound lever and rocker motion forces the jaws of the tool over the bent end of the aerial ring binding it tight on the messenger strand.

The tool is attractive in design and is furnished with three sets of case hardened steel jaws milled to suit the three standard diameters of messenger strands commonly used by telephone companies. At a very slight expense for new jaws to replace those worn in service, the tool can be put in as good condition as new.

Convenience in operation is one of the principal points considered in the design of this tool. The handle and lever which operate the jaws are both located on one side of the strand. This permits the crimper easily to be passed through trees, thus overcoming a serious difficulty.

Specifications for Standard C. C. C. Wire.

Specifications for hard-drawn, bare, Colonial Copper Clad line wire, of 30 per cent. conductivity are published in a bulletin (No. 200-1) just issued by the Standard Underground Cable Co., of Pittsburgh, Pa. This bulletin contains a table giving the requirements as to the mechanical and electrical properties of the finished, hard-drawn untinned wire.

Paragraphs.

STANDARD UNDERGROUND CABLE CO., of Pittsburgh, Pa., has published a bulletin (No. 400-1) devoted to weatherproof insulated wires and cables. Solid, double braid weatherproof wire and stranded double and triple braid weatherproof cable are shown.

THE NAUGLE POLE & TIE CO., Chicago, has issued a pamphlet containing the Northwestern Cedarmen's Association specifications for white cedar telephone poles. In addition to these specifications, the pamphlet shows several views of the company's yards, and contains instructions and data for ordering

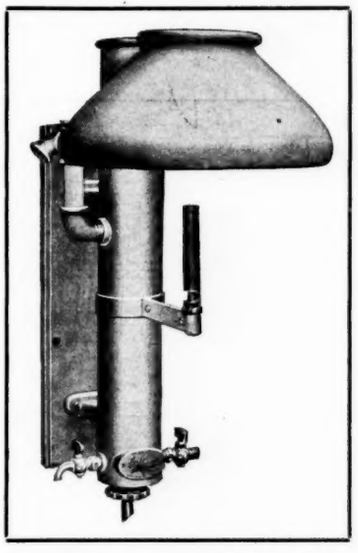
R. S. MUELLER, manufacturers' agent and warehouseman, 423-425 High Avenue, S. E., Cleveland, Ohio, has issued the Cleveland Stock Sheet showing magnet wire in Cleveland stock on April 15, 1914. "A traveling man," says R. S. M., "explained his business this way: 'We sell an order when we can sell it, and when we can't sell it, we cancel it.'"

THE INTERNATIONAL HARVESTER CO., of Chicago, has published a very attractive booklet, profusely illustrated, devoted to the International Motor Truck. The booklet starts off with an account of one of the first International motor trucks sold in New England and which has since been run more than 90,000 miles, equivalent to thirty times across the United States the long way, or four times around the world. The illustrations show the various types of International trucks, the water-cooled and air-cooled motors, a two-page diagram showing frame and mechanical construction with every part designated, a two-page bird's-eye view of the Akron, Ohio, works of the company, which are exclusively devoted to the manufacture of International Motor Trucks, and other views.

"SAVING MONEY IN BUYING" is the title of an interesting and instructive booklet which has just been issued by Yawman & Erbe Mfg. Co., of Rochester, N. Y., of which Harry C. Slemin is now advertising manager. This company has given a good deal of time and thought to the designing of a card record and catalog filing system for purchasing agents. The purpose of this new booklet is to call the attention of the purchasing agent to a system of filing and records that can be made to fit his particular needs. It will be found valuable because it points out a simple effective method of filing catalogues, price lists, quotations, requisitions and orders, so that the information they contain can be instantly referred to, enabling the purchasing agent to maintain an effective reference and follow-up system.

A Battery Preserver.

An automatic water still which the manufacturer states is guaranteed to produce from 12 to 50 gallons daily (according to size) of the purest water, regardless of how polluted, dirty or contaminated the water supply may be,



"Peerless" Automatic Water Still.

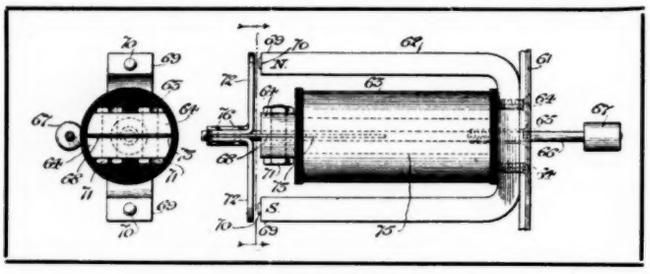
is shown in the accompanying illustration. This is known as the "Peerless" Automatic Water Still and is manufactured by the Sparta Mfg. Co., 111 High Street, South Bend, Ind.

It is claimed that this still will produce distilled water for 1 cent and not to exceed 2 cents per gallon, if gas costs at the rate of $1.00 for 1,000 cu. ft. The device, it is said, works 24 hours a day and 365 days in the year without requiring attention. It is represented to be indestructible, is easy to clean and very simple to operate. The device is made in three sizes.

Record of Telephone Patents Recently Issued

1,090,372. March 17, 1914. DRY BATTERY; J. A. E. Achenbach, Hamburg, Germany. The negative electrode consists of several layers of corrugated, finely perforated zinc. These layers surround the central positive electrode and a semi-solid electrolyte completes the elements of the cell.

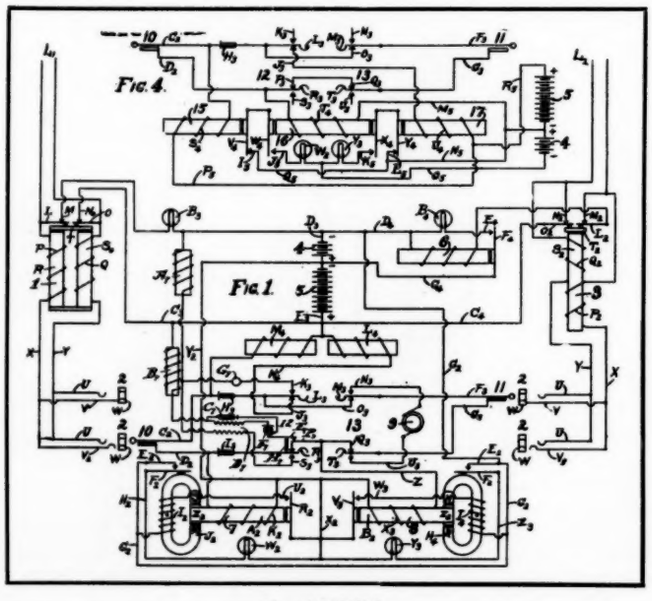
1,090,435. March 17, 1914. HARMONIC SIGNALING SYSTEM; Harry G. Webster, Chicago. In this system of ringing for



No. 1,090,436.

party lines, non-interference is claimed to be secured by avoidance of frequency rates which are odd numbered factors, as 1-3 or 1-5, of the other sets employed; and by use of reed bells inherently harmonically unresponsive to current having frequency rates which are even numbered factors, as ½ or ¼, of the frequencies for which they are adjusted. Some of the alternating current frequencies employed, bear a substantially even multiple relation to each other, some are non-multiple of others but none are odd multiples of others. For example, the higher frequencies may be approximately 32, 48 and 64 cycles per second and the lower approximately 18⅝ cycles.

1,090,436. March 17, 1914. CALL BELL; Harry G. Webster, Chicago. A reed call bell for use in connection with the harmonic signaling system covered by the preceding patent is described. It comprises a tuned reed striker having a characteristic rate of vibration and means whereby magnetic stresses, corresponding in direction and frequency to the impressed current impulses, will be applied to the striker, independent of its momentary positions. The construction to produce this result differs from the usual form of ringers in that the positions of the permanent magnet and the electromagnet are reversed.



No. 1,090,821.

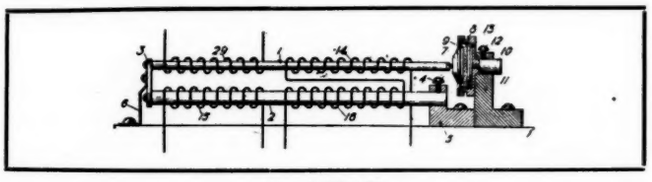
That is, the electromagnet is mounted between the two legs of the permanent magnet of the horseshoe type as shown in the illustration.

1,090,557. March 17, 1914. TRANSMITTER; R. S. M. Mitchell, Syracuse, N. Y.; assigned to The Talking Moving Picture Co. A three-way transmitter is described. A vibrating diaphragm placed between solid carbon electrodes and a spiral resistance is interposed between the diaphragm and the carbon electrodes, completing the electric circuit.

1,090,627. March 17, 1914. SIGNALING DEVICE FOR PARTY LINE TELEPHONES; Thomas Kernan, East St. Cloud, Minn. The feature of this patent is a motor controlled by a switch operated by the hook spring contacts. A signal sending device is operated by the motor to automatically transmit an audible signal over the line for identifying the telephone.

1,090,821. March 17, 1914. TELEPHONE SYSTEM; Frederick R. Parker, Chicago. The features of this patent include improved means for controlling the subscriber's calling signal and to disconnect it and the exchange signaling apparatus from the line when the latter is in use; for operating and controlling the supervisory signal; and for preventing the operator from listening during conversations. For the latter purpose, the operator's listening key, when depressed, is adapted to cut the subscribers' lines apart. New arrangements for the line and supervisory relays are set forth. It is claimed that the system provides an absolutely clear line for conversation and for four-party line ringing, with but two conductors in the multiple cable and through the cords and plugs. The application for this patent was filed 10 years ago and contains 71 claims. It is said to cover systems shown in many other patents, antedating them, in consequence of which they are subordinate to this patent.

1,090,990. March 24, 1913. ELECTRIC TRANSMISSION OF ENERGY; Isidor Kitsee, Philadelphia, Penn.; assigned to American Telephone & Telegraph Co. Covers provision of means



No. 1,092,453.

for simultaneously transmitting telegraph and telephone messages over the same line. The telegraph transmitting device comprises two kinds of currents in opposition to each other and normally in the line. A shunt is placed around one of the current sources and includes a transmitting key adapted to open and close the shunt. The telegraph receiving device comprises a polarized relay inserted in the line. The telephonic transmitting apparatus consists of the microphonic transmitter, a source of current, and an inductorium, the secondary of which is connected in the line. The receiving device consists of a receiver connected in shunt as to the polarized relay.

1,091,193. March 24, 1914. TELEPHONE EXCHANGE SYSTEM; Edward E. Clement, Washington, D. C.; assigned to Frederick C. Stevens, Attica, N. Y. Described a plurality of switching or connective circuits and selecting relays. These latter are associated with and individual to the respective switching or connective circuits, but are adapted to be directly controlled by the closure of the subscribers' lines, when calling, to connect them with the connective circuits successively as they become idle.

1,091,765. March 31, 1914. AUTOMATIC SELECTOR SWITCH; John N. Reynolds, Greenwich, Conn.; assigned to Western Electric Co. Relates to a panel type selector switch for automatic or semi-automatic telephone exchange systems. It refers especially to electromagnetic means for controlling brushes.

1,091,832. March 31, 1914. SELECTIVE SIGNALING SYSTEM; Edwin R. Gill, Yonkers, N. Y.; assigned to Hall Switch & Signal Co. This system is adapted for telephone train dispatching, and includes selective mechanism connected to the main line, an electromagnetic signaling device in a local circuit and a circuit closer operated by the selective mechanism for closing the local circuit.

1,091,965. March 31, 1914. TELEPHONE MOUTHPIFCE PROTECTOR; C. Russell, Columbus, Ohio. This is a mouthpiece of the individual type for carrying in the pocket. It is in the shape of a truncated cone having a ring within its larger end. A collapsible cone is secured to the ring of the truncated cone and means are provided for holding it within a standard telephone mouthpiece.

13,710. (Reissue.) March 31, 1914. TELEPHONE EXCHANGE SYSTEM; Harry G. Webster, Chicago; assigned to Stromberg-Carlson Telephone Mfg. Co. Relates to improved line signal-

ing mechanism. Means, controlled by the operator, are provided for increasing the magnetizing effect of one of the coils of a relay so as to affect the operation of means controlled by a relay to render ineffective the line indicator.

1,092,453. April 7, 1914. DEVICE FOR AMPLIFYING VARIATIONS IN ELECTRICAL CURRENTS; Paul M. Rainey, West Hoboken, N. J.; assigned to Western Electric Co. The device consists of a telephone repeater in combination with a microphone. The repeater consists of a magnetizing coil having a plurality of cores placed in the incoming circuit, and a variable resistance device in the local or outgoing circuit. Means are provided for normally subjecting some of the cores to steady magnetizing forces of low intensities and others to steady magnetizing forces of high intensities. Provision is made for connecting the cores to each other and to a support and to a movable member of the variable resistance device.

1,092,510. April 7, 1914. LIGHTNING ARRESTER; Augustus Allendorf, Harvard, Ill. The feature of this arrester is a rotatable drum upon which are placed fuses. When fuses are blown, they are automatically dropped from the drum and the circuit may be closed by the rotation of the drum, thus bringing other fuses into connection with the line.

1,092,637. April 7, 1914. TELEPHONE RECEIVER HOLDER; Stanley Dusak, Seanor, Penna. A receiver holder adapted for wall telephone sets is described. It consists of a bracket to which is pivotally connected an arm having its outer end provided with a plurality of space lugs. Upon the outer end of the legs is attached a series of links upon which carry the receiver clamping member. The links are capable of being swung on the plane of the arm and of being folded upon themselves so that the receiver can be placed upon the switch-hook.

Condensed News Reports

Officers of Companies are Earnestly Requested to Forward Us Promptly All Financial and Other Statements as Soon as Issued, and Any Items of Interest as to Their Plants and Systems

Personal.

E. E. RANNEY, superintendent of plant and equipment for the Cleveland Telephone Co., Cleveland, Ohio, has resigned to become affiliated with the Harrison Electric Co.

CHARLES F. STAPLES, of the Minnesota Railroad and Warehouse Commission, has been appointed a member of the advisory board of the division of valuation of the Interstate Commerce Commission.

COL. J. R. BRIGHT, for the past two years division superintendent of the Memphis, Tenn., plant of the Cumberland Telephone & Telegraph Co., has been promoted to a position in the plant department of the company at Nashville.

PERCY REDMOND, of Oklahoma City, Okla., has been appointed general superintendent of traffic for the Southwestern Telegraph & Telephone Co., with headquarters at Dallas, Texas, to succeed F. W. Yensem, who will do special work over the entire system.

M. A. BALDWIN, who has been manager of the Blanchester, Ohio, exchange of the Clinton Telephone Co. since the construction of the plant, nearly 13 years ago, has resigned to become postmaster of Blanchester. Heber Davis, who has been employed at the company's main exchange at Wilmington, will succeed Mr. Baldwin.

JUDGE GEORGE M. SCHULTZ has been appointed a member of the Public Service Commission for the First District of New York. Mr. Schultz is a graduate of the New York Law School and the College of the City of New York. At the time of his appointment he was acting as surrogate of Bronx county, New York.

JUDGE FRANK IRVINE, dean of the College of Law, Cornell University, has been appointed a member of the Public Service Commission of the Second District of New York. Mr. Irvine graduated from Cornell in 1880 and, after studying law at the National University Law School, was admitted to the bar in 1883. In 1891, he was appointed to fill a vacancy on the district bench in Nebraska, and later was elected to serve a full term. He was a member of the state supreme court commission in 1893 and six years later returned to active practice. In 1901 he came back to Cornell and in 1907 succeeded the late Dean Huffcuff as dean of the law college.

WINTHROP M. DANIELS' appointment as a member of the Interstate Commerce Commission, to succeed Commissioner Prouty, who resigned to take charge of the division of valuation, was recently confirmed by the United States Senate. Mr. Daniels is a graduate of Princeton and for nine years acted as professor of political economy of that institution. Since 1911 he has been a member of the board of public utility commissioners of New Jersey. Mr. Daniels is the author of "Elements of Public Finance," "Revision and Continuation of Alexander Johnson's History of the United States" and "Continuation of Alexander Johnston's History of American Politics."

HENRY CLAY HALL, whose nomination as a member of the Interstate Commerce Commission, to succeed the late John Marble, was confirmed by the United States Senate several weeks ago, was born in New York City on January 3, 1860. Mr. Hall is a lawyer, having received his education at the Columbia Law School. He is also a graduate of Amherst College. Mr. Hall was admitted to the New York state bar in 1883. He practiced in France shortly after, and from 1885 to 1892 acted as counsel for the United States legation. He was at one time mayor of Colorado Springs, Colo., and he has also been president of the Colorado State Bar Association. At the time of his appointment, Mr. Hall was acting as general attorney for the Arkansas, Louisiana & Gulf Railway Co.

Obituary.

NATHANIEL EWING, chairman of the Pennsylvania Public Service Commission, died recently. Mr. Ewing was a graduate of Princeton and prior to his appointment to the state railroad commission in 1908, served on the Fayette county bench.

New Companies and Incorporations.

BLOOMFIELD, KY.—The Calrose Rural Telephone Co. has been incorporated with $140 capital by J. C. Drake, T. P. Stephens, John Welch and Samuel Sullivan.

JAMESTOWN, KY.—The Russell County Home Telephone Co. has been incorporated by C. I. Medries, Frank Sabely and Elmer L. Kimball with $1,000 capital stock, to build and operate a telephone system in Jamestown and Columbia, with long distance connection to Greensburg, Lexington and other points. Frank Sabely is manager of the company.

JESSE, KY.—A new telephone company is being organized here by W. L. Overton and others.

PARTRIDGE, KY.—The Partridge Telephone Co. has been incorporated by W. G. Creech and others with capital stock of $1,100, for the purpose of constructing and operating a system in Patridge, as well as long distance lines to Harlan, Ky., a distance of 22 miles. W. G. Creech is manager.

RUSSELL, KY.—The Russell Home Telephone Co. has been incorporated with $1,000 capital stock by C. I. Medaris, Frank Lapsley and Erasmer Kimble.

WOODBURN, KY.—The Farmers Telephone Co. has been incorporated with $1,000 capital stock by V. K. Nicoll, E. G. Duff, H. C. Kirby and M. F. Mitchell.

LORANGER, LA.—The Upland Telephone Co. has filed articles of incorporation with $10,000 capital stock. The officers of the company are as follows: John E. Martin, president; Charles P. Matti, vice-president and general manager, and Everett Spraker, secretary and treasurer.

SUTTONS BAY, MICH.—The Suttons Bay Telephone Co. has been incorporated with $4,950 authorized capital stock. The incorporators are: Henry Kahrs, of Leland, Thomas Kroupe and Herbert Lindlay, of Traverse City.

SNOW CAMP, N. C.—The Snow Camp Mutual Telephone Co. has been incorporated with an authorized capital stock of $5,000. The incorporators are: David H. Thompson, Jas. H. Roach, Cabel McPherson, Claud F. Coble, William P. Stout, all of Snow Camp; and H. Z. Terry, of Siler City.

STERLING, NEB.—The farmers in this vicinity have organized an Independent telephone company and elected officers as follows: J. E. Stutheit, president; Willis Rogge, secretary; William Kershaw, treasurer.

MCHENRY, N. D.—Articles of incorporation have been filed

by the Farmers Telephone Co. with $15,000 capital stock. The incorporators are: Andrew Thrana and John Kvame, of Granville, and J. H. Muus, of Velva.

CASHION, OKLA.—The Silver Ridge Telephone Co. has been incorporated with $250 capital stock by McCord Wilson, Geo. L. Eschwig and C. P. Ward, all of Cashion.

PORTLAND, ORE.—Articles of incorporation have been filed by the Yaquina Bay Telephone Co. with $50,000 capital stock. The incorporators are A. Welch, E. W. Hall and A. Prichard, all of Portland.

FLORENCE, S. D.—Articles of incorporation have been filed by the Dexter-Fuller Telephone Co. with $5,000 capital stock. The incorporators are: Thos. N. Hagen, A. S. Rukstad and J. S. Rukstad, all of Florence.

ELMENDORF, TEX.—The Parita Telephone Co. has been incorporated with a capital stock of $2,500. The incorporators are: J. A. Pirie, Roy Barnburg and Joe Campbell.

GRAHAM, TEX.—Articles of incorporation have been filed by the Graham Telephone Co. with $15,000 capital stock. The incorporators are: W. H. Mayes, J. P. Hamilton and Robert Bower.

BLACKSBURG, VA.—The Back Roads Farmers Telephone Co. has been incorporated with $2,500 capital stock. The company has elected officers as follows: President, L. B. Creasy; vice-president, J. C. All; secretary, W. E. Smith; treasurer, W. H. Creasy. The officers, together with R. W. Creasy, constitute the incorporators.

BLACKSBURG, VA.—The Slusser Telephone Co. has been incorporated with $2,000 capital stock. The officers of the company are as follows: President, C. A. Crumpacker; vice-president, F. A. Slusser; secretary, W. B. Slusser, all of Blacksburg.

ODD, W. VA.—The Odd Telephone Co. has filed articles of incorporation with $5,000 capital stock. The incorporators are: H. H. Lilly, S. B. Hale, A. E. Fink, C. H. Hedrick and C. E. Wallace, all of Odd, W. Va.

CAZENOVIA, WIS.—The Hawkins Creek Telephone Co. has been incorporated with $750 capital stock by Michael Neary, Christ Woodman, Edward Beibusch, John Poole and John Connors, all of Cazenovia.

RHINELANDER, WIS.—The Oneida Farmers Telephone Co. has been incorporated with $4,000 capital stock by C. P. Crosby, T. C. Wood and John Moen, all of Rhinelander.

WESTBORO, WIS.—The Westboro Telephone Co. has been incorporated with $2,500 capital stock by J. W. Kaye, R. J. Talbot, H. L. Fritze, H. R. Du Chaine and J. B. Engstrum, all of Westboro

Construction.

WILMINGTON, DEL.—E. P. Bardo, district manager of the Diamond State Telephone Co., has announced that approximately 1,500 telephones will be installed in Delaware during this year.

DRUMMOND, WIS.—The Wisconsin Telephone Co. is extending its toll lines from Drummond to Hayward, through the towns of Cumberland, Cable, Phipps and Seeley, which will give direct connection between Ashland and Hayward. The cost is estimated at $11,000.

TORONTO, ONT.—The Bell Telephone Co. of Canada is contemplating the erection of a new exchange in this city.

Underground.

TAMPA, FLA.—The Peninsular Telephone Co. contemplates an expenditure of $300,000 in improving its underground system in Tampa, constructing a new exchange and office building, and constructing additional circuits between Tampa and other exchanges.

Financial.

OGEMA, WIS.—The Ogema Telephone Co. has filed an amendment to its articles of incorporation, increasing the capital stock of the company from $3,500 to $7,000. L. H. Johnson is secretary.

Elections.

KERMAN, CAL.—The Kerman Telephone Co. held its annual meeting recently and elected the following officers for the ensuing year: J. A. Johnson, president; J. Mansar, vice-president; J. A. Schleuter, secretary, and P. Bowdish, treasurer.

THORNTOWN, IND.—At the annual meeting of the Thorntown Co-Operative Telephone Co. the old board of directors and officers were re-elected as follows: S. V. Titus, president; Lewis Beesley, treasurer-secretary; H. W. Huber, Watson Masters, Joe Goldsberry, J. E. LaRue, Charles Stout, Dr. E. L. Brown. J. E. Boyer was re-elected general superintendent.

VINTON, IOWA.—At the annual meeting of the Keystone Telephone Co. the following officers were elected: President, G. F. Tangeman; vice-president, C. A. Johnson; secretary, J. F. Feuerbach. The trustees are: John Zornig, Julius Klappholz, Henry Miller.

LAKE CITY, MICH.—At the annual meeting of the Missaukee Telephone Co. the following officers and directors were elected for the ensuing year: President, W. H. Churchill; vice-president, F. D. McGregor; secretary and treasurer, G. S. Stout; directors, Fred Rose, R. M. Bielby, W. H. Churchill, James Cavanaugh and Mrs. M. M. Peck.

WELLS, MINN.—The annual meeting of the Up-to-Date Telephone Co. was held recently, at which the following officers were elected for the ensuing year: George Quade, president; F. C. Krusp, vice-president; Fred E. Passer, secretary; Henry Biesterfeldt, treasurer.

SURPRISE, NEB.—The Surprise Telephone Co. has elected directors and officers as follows: Directors, W. H. Greenslit, D. L. Sylvester, W. W. LaMunyon, E. E. Miller, Wm. Kunzman, J. O. Rathburn and G. F. Osterreicher. Officers: G. F. Osterreicher, president; W. H. Greenslit, vice-president; D. L. Sylvester, treasurer; Dr. E. E. Miller, secretary and general manager.

SANDOWN, N. H.—At the annual meeting of the stockholders of the Sandown Telephone Co. the following officers and directors were elected for 1914: President and manager, George S. Sanborn; treasurer, John D. Kelley; directors, John W. Lovering, Clarence I. Drowne, Charles W. Goodwin, Isaac N. A. McKay, Charles H. Knights, George S. Sanborn and Elwin C. Mills.

SAVANNAH, N. Y.—At the annual meeting of the stockholders of the Savannah Telephone Co., the following directors were elected: C. A. Coleman, D. J. Cotton, R. S. Giddings, V. D. Tallman, Geo. Sprague, Fred Wright and W. J. Cotton. At a subsequent meeting of the directors V. D. Tallman was chosen president, Fred Wright, secretary, and C. A. Coleman, treasurer.

FREMONT, OHIO.—The Fremont Home Telephone Co. has elected the following officers for the ensuing year: James G. Hunt, president; William A. Gabel, vice-president; George W. Seaman, secretary and general manager and John M. Sherman, treasurer.

MILWAUKEE, WIS.—The Wisconsin Telephone Co. has elected the following officers for the ensuing year: President, B. E. Sunny; first vice-president and treasurer, Alonzo Burt; second vice-president, H. L. Hill; secretary, W. I. Mizner; assistant secretary, F. L. Curtis; general auditor, B. S. Garvey.

Miscellaneous.

MONTROSE, IOWA.—The exchange of the Iowa Telephone Co. was recently destroyed by fire. The loss is estimated at $60,000.

ITHACA, N. Y.—Manager Ellsworth of the Ithaca branch of the Federal Telephone & Telegraph Co., of Buffalo, has announced that in the near future an automatic system will be installed here.

LAKETON, IND.—The Laketon-Disko Telephone Co. has just completed the installation of a new switchboard.

CLEARFIELD, PA.—The Huntingdon & Clearfield Telephone Co. has purchased the properties of the Summerville Telephone Co., of Summerville, Penna., which operates in Indiana, Jefferson and Clearfield counties.

COLUMBIA, S. D.—The Dakota Central Telephone Co.'s exchange in this town was almost completely destroyed by a fire which wiped out the main business section of the town.

BROWNWOOD, TEX.—The West Texan Telephone Co. has purchased the properties of the Menard Telephone Co., of Menard, Tex., and make a number of improvements to the system. The West Texas company is just completing the work of rebuilding its Ballinger exchange, at a cost of $20,000.

WEST, TEX.—The Brazos Valley Telephone & Telegraph Co. have just completed rebuilding its entire plant in this city and county and has added 40 more lines to the central office equipment.

NEWBURG, WIS.—The Newburg Telephone Co. has purchased the properties of the Port Washington Telephone Co., of Port Washington, Wis.

MADISON, WIS.—The Wisconsin State Railroad Commission has authorized the Wisconsin Telephone Co. to trade its exchange and plant in the city of Ashland to the Ashland Home Telephone Co. for the exchanges and toll lines of the Mellen, Bayfield, and North Wisconsin telephone companies and $17,500 in 6 per cent. bonds. The Wisconsin company's exchange and plant in Ashland was valued at $46,000.